

State of the Water Resources

June 11, 2009

Terrie Bates
Susan Sylvester
Dean Powell
Pete Kwiatkowski

What a difference 30 days can make

- November 2008 – April 2009
- Driest six month period on record



What a difference 30 days can make

- Wettest May on record



Rainfall has eased drought conditions

Water Conservation Area 2A



April 22, 2009



Rainfall has eased drought conditions

Water Conservation Area 2A



April 22, 2009



35 days later....



May 27, 2009



but was too much, too soon for some....

*“We are going to have a
fantastic wading bird season
unless we have a Biblical flood”*

Dean Powell
May 14 Board Meeting



Adaptive Protocols

- Initiate process to update the Adaptive Protocols from the WSE regulation schedule to the LORS lake regulation schedule
- Background staff work:
 - Convene internal working group to identify where revisions are likely needed



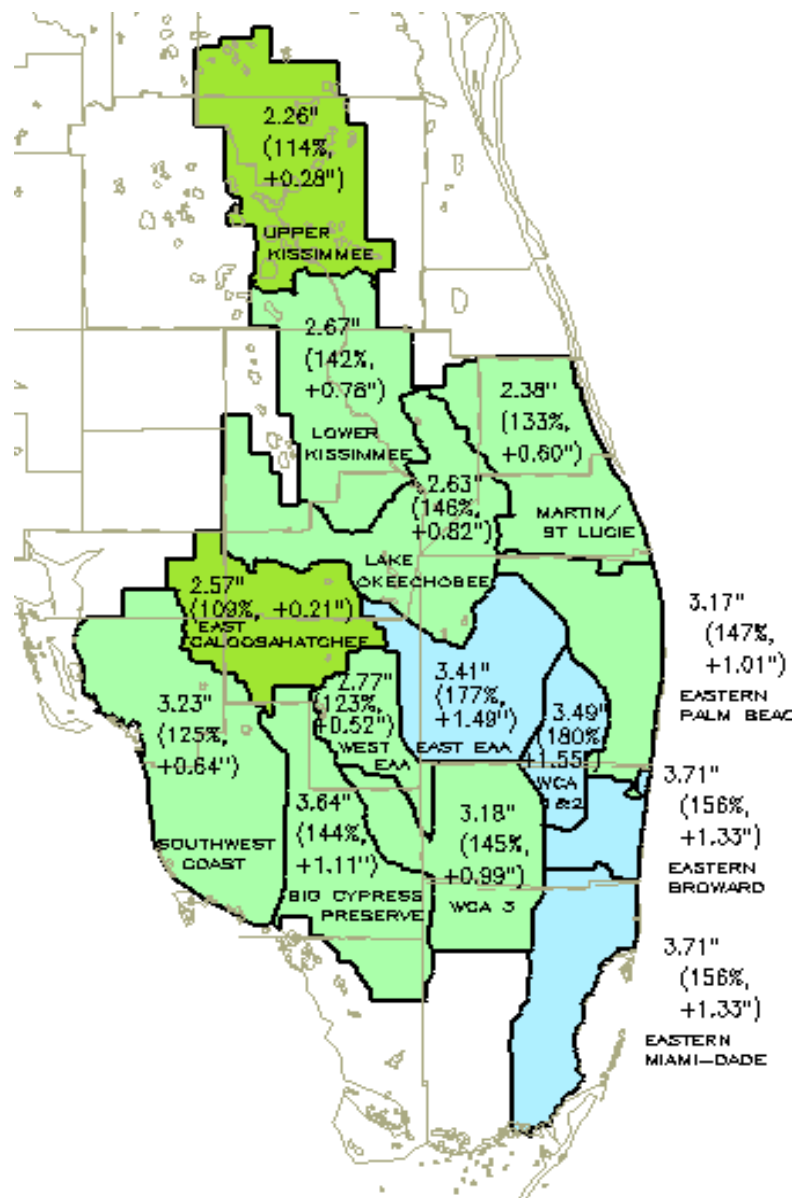
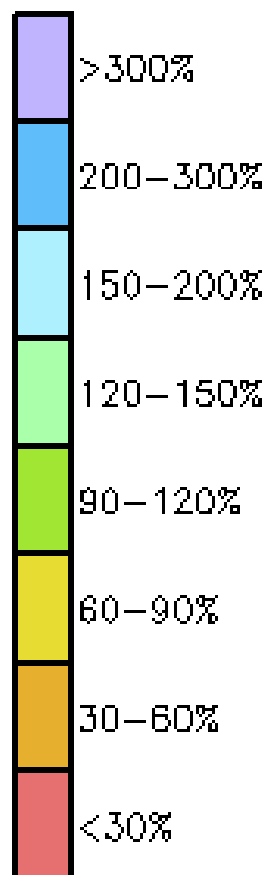
Adaptive Protocols

- WRAC to convene special issue workshops that includes stakeholders & other interested parties
- Kick off process with presentation to WRAC in July on existing Adaptive Protocols
- Regular monthly meetings



Water Conditions

Governing Board Workshop
June 10, 2009
Susan Sylvester



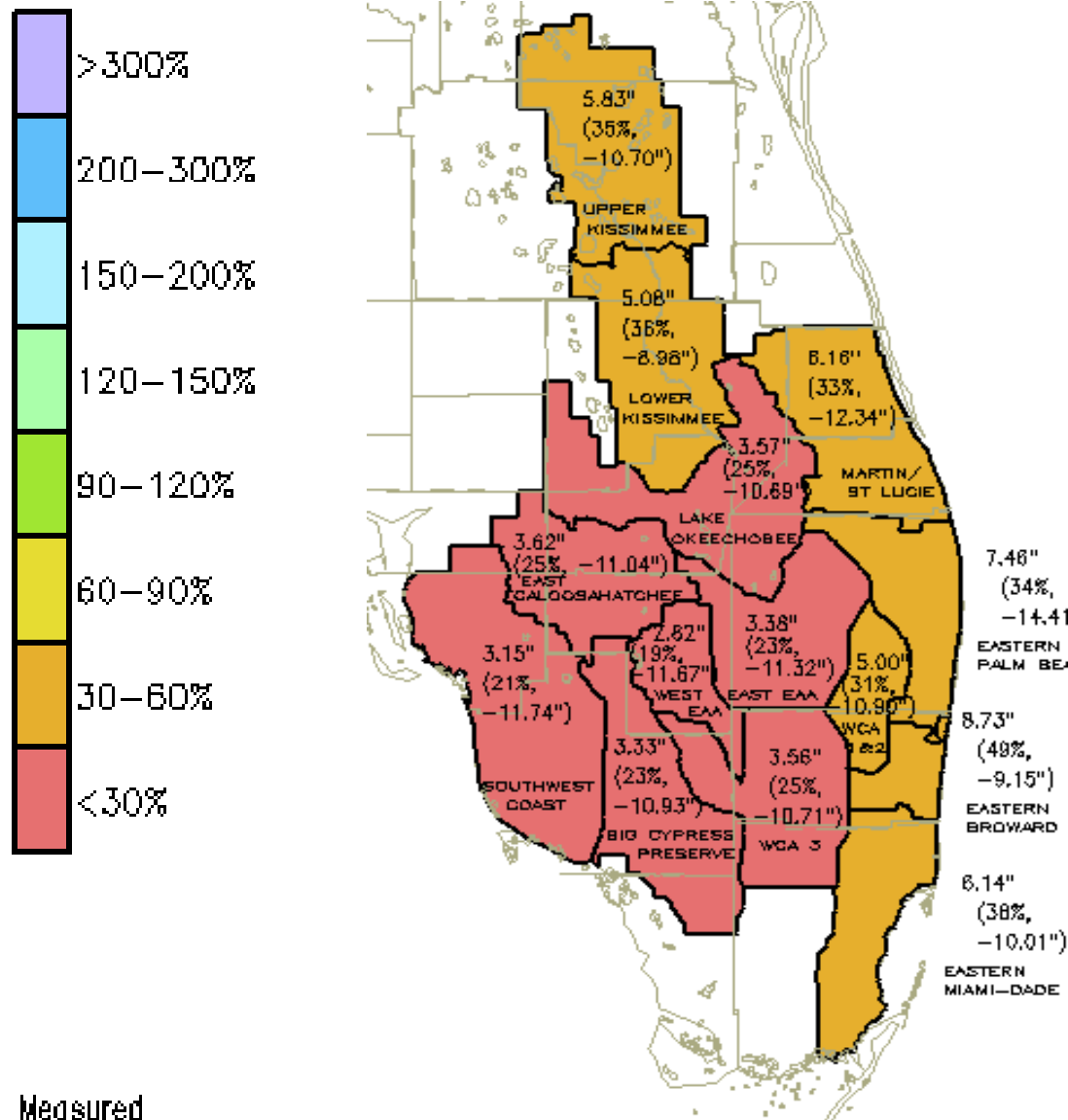
June 2009 Rainfall

2 June – 9 June

DISTRICT-WIDE:
2.98" (139%, +0.84")

Average June
=8.02 "

Measured
(% of Avg.
Diff From Avg)

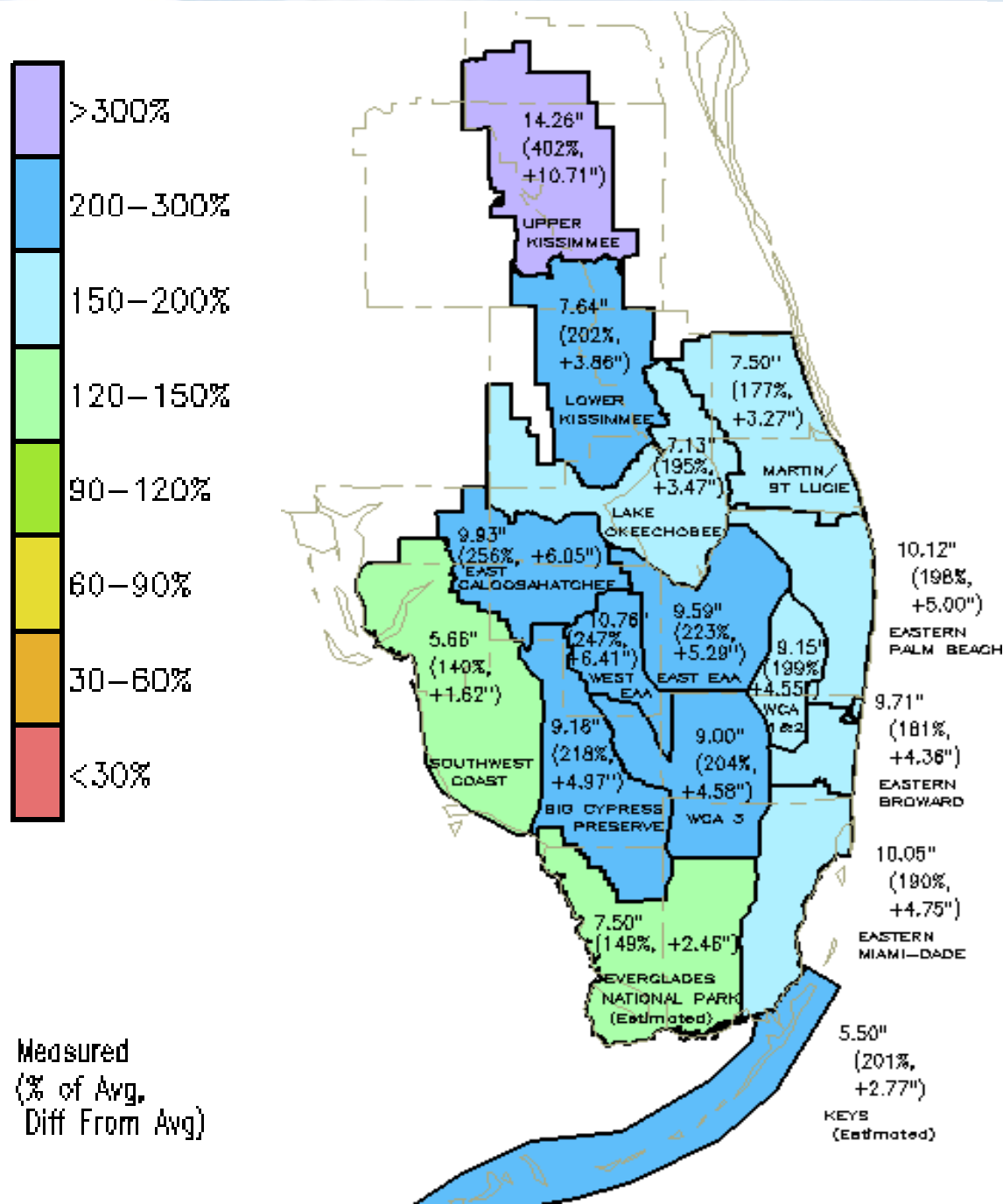


Dry Season Rainfall 02-Nov-08 to 08-May-09

DISTRICT-WIDE:
4.54" (29%, -11.01")

Average (Nov-April)
Dry Season
= 13.6"

- WCAs 1 & 2, East Coast and Upper and lower Kissimmee basins received between 30 and 40% of their dry season average
- The rest of the District received less than 25% of its dry season average



May Rainfall 2 May – 1 June 2009

DISTRICT-WIDE:
9.04" (216%, +4.85")

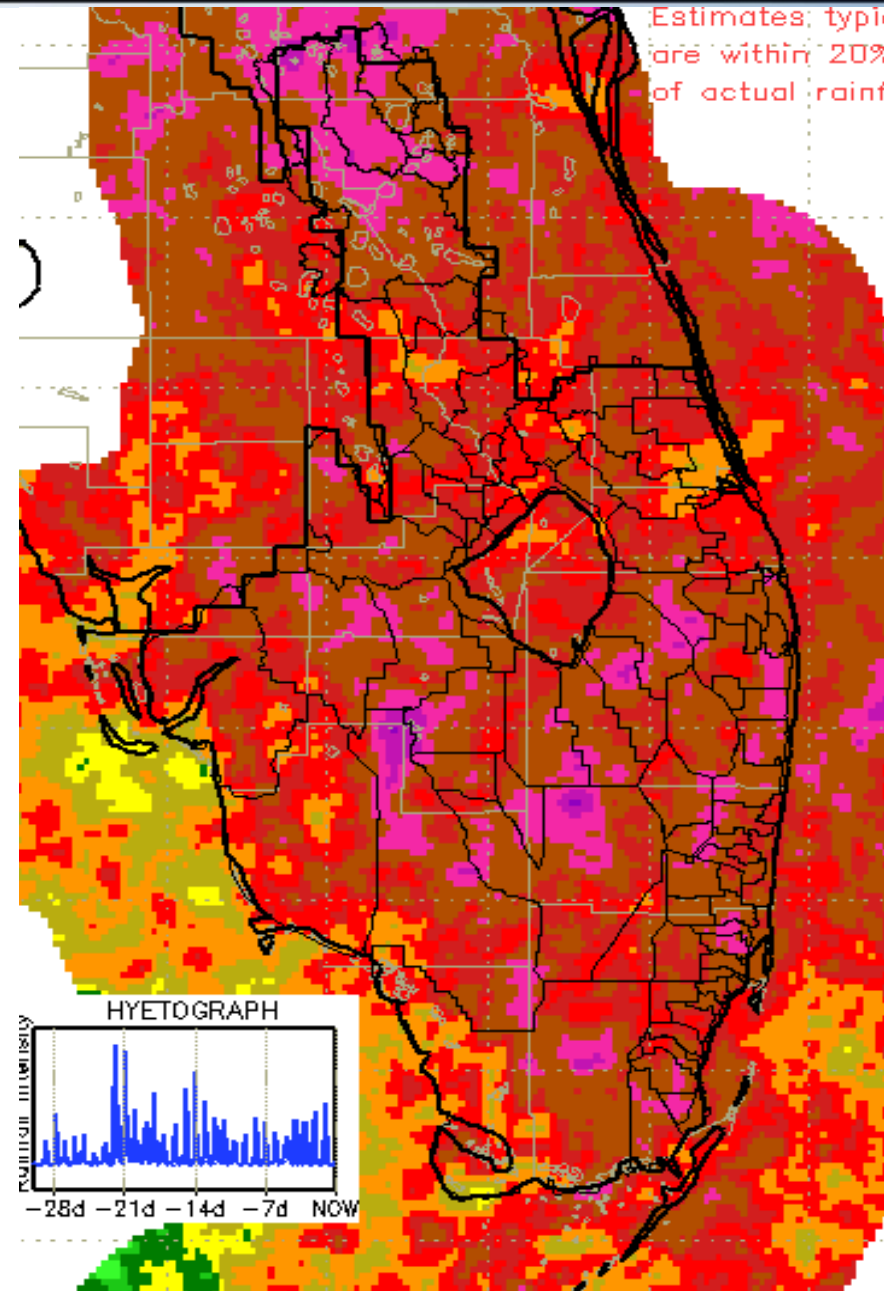
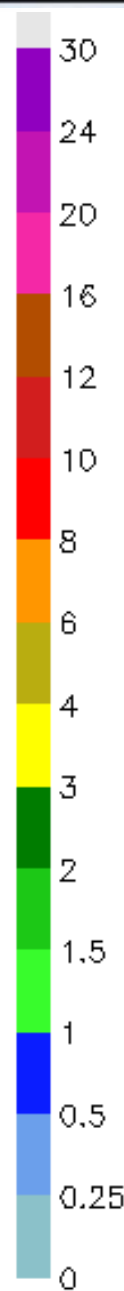
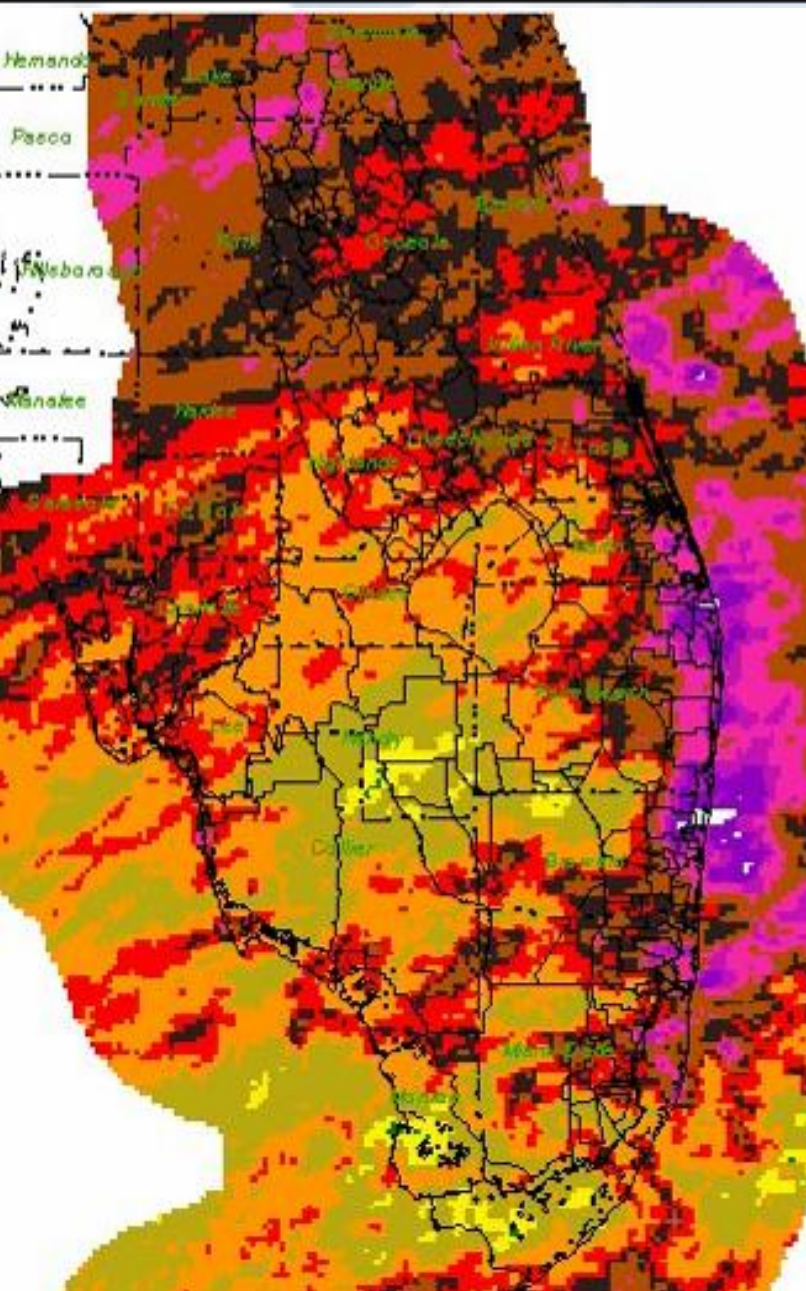
Average (May)
= 4.19"

• *By comparison, May 2009 produced 9.04" over the District,*

• *Including 14.26" in the Upper Kissimmee Valley.*

• *Where rainfall was 4 times the historical average for the month and resulted in a 10.71" surplus of rain.*

SOUTH FLORIDA WATER MANAGEMENT DISTRICT



Twice as much rain fell in May than had fallen in the previous 6 months.

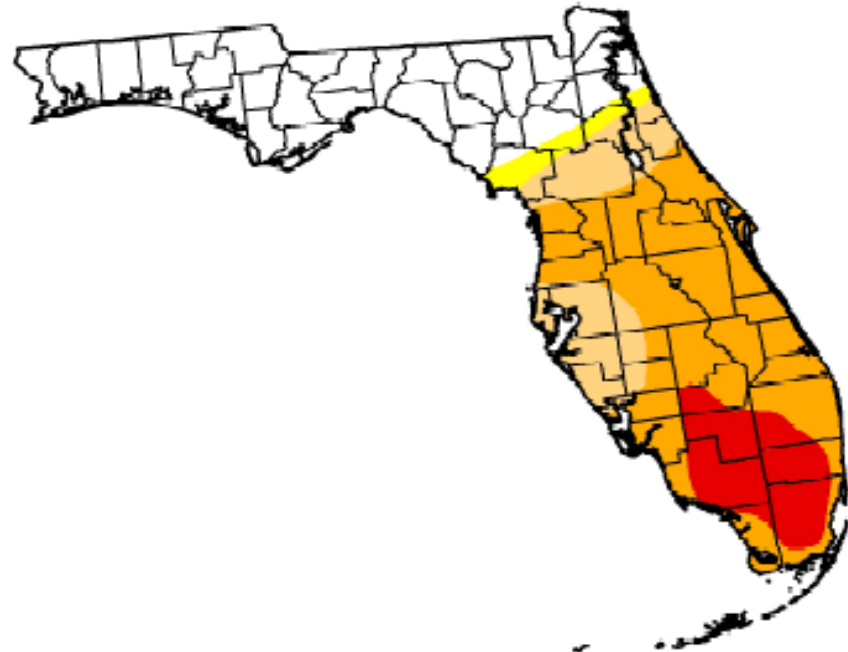
Eric Swartz and Geoff Shaughnessy – SFWMD meteorologist discussing the drought



U.S. Drought Monitor Florida – May 5, 2009

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	37.6	62.4	59.8	47.3	11.3	0.0
Last Week (04/28/2009 map)	37.6	62.4	59.8	47.3	8.9	0.0
3 Months Ago (02/10/2009 map)	16.0	84.0	24.8	0.0	0.0	0.0
Start of Calendar Year (01/06/2009 map)	44.0	56.0	13.4	0.0	0.0	0.0
Start of Water Year (10/07/2008 map)	75.8	24.2	0.0	0.0	0.0	0.0
One Year Ago (05/06/2008 map)	64.4	35.6	18.8	5.7	0.0	0.0



Intensity:

- D0 Abnormally Dry
- D1 Drought - Moderate
- D2 Drought - Severe
- D3 Drought - Extreme
- D4 Drought - Exceptional

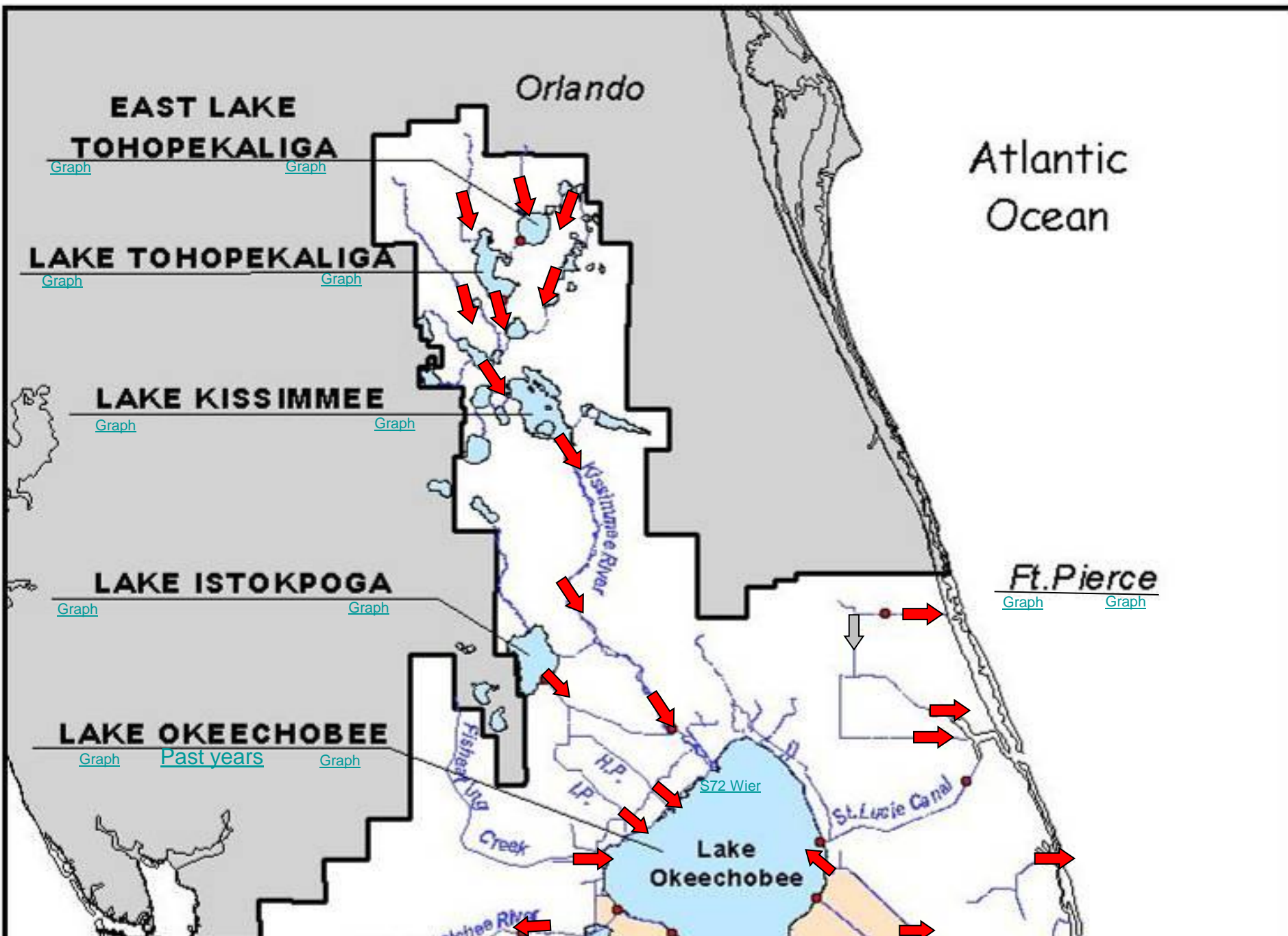
The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.

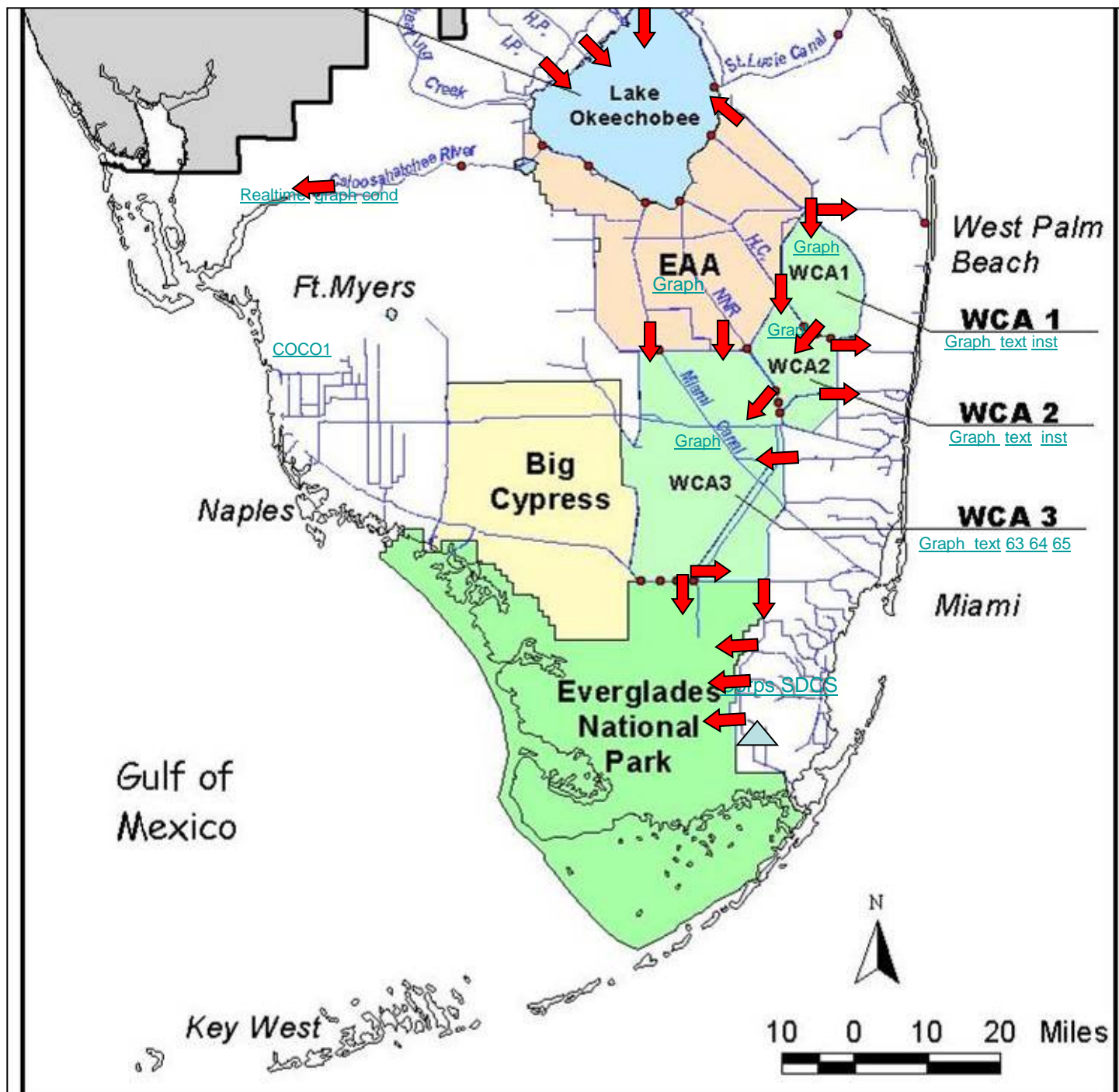
<http://drought.unl.edu/dm>



Released Thursday, May 7, 2009

Author: Laura Edwards, Western Regional Climate Center

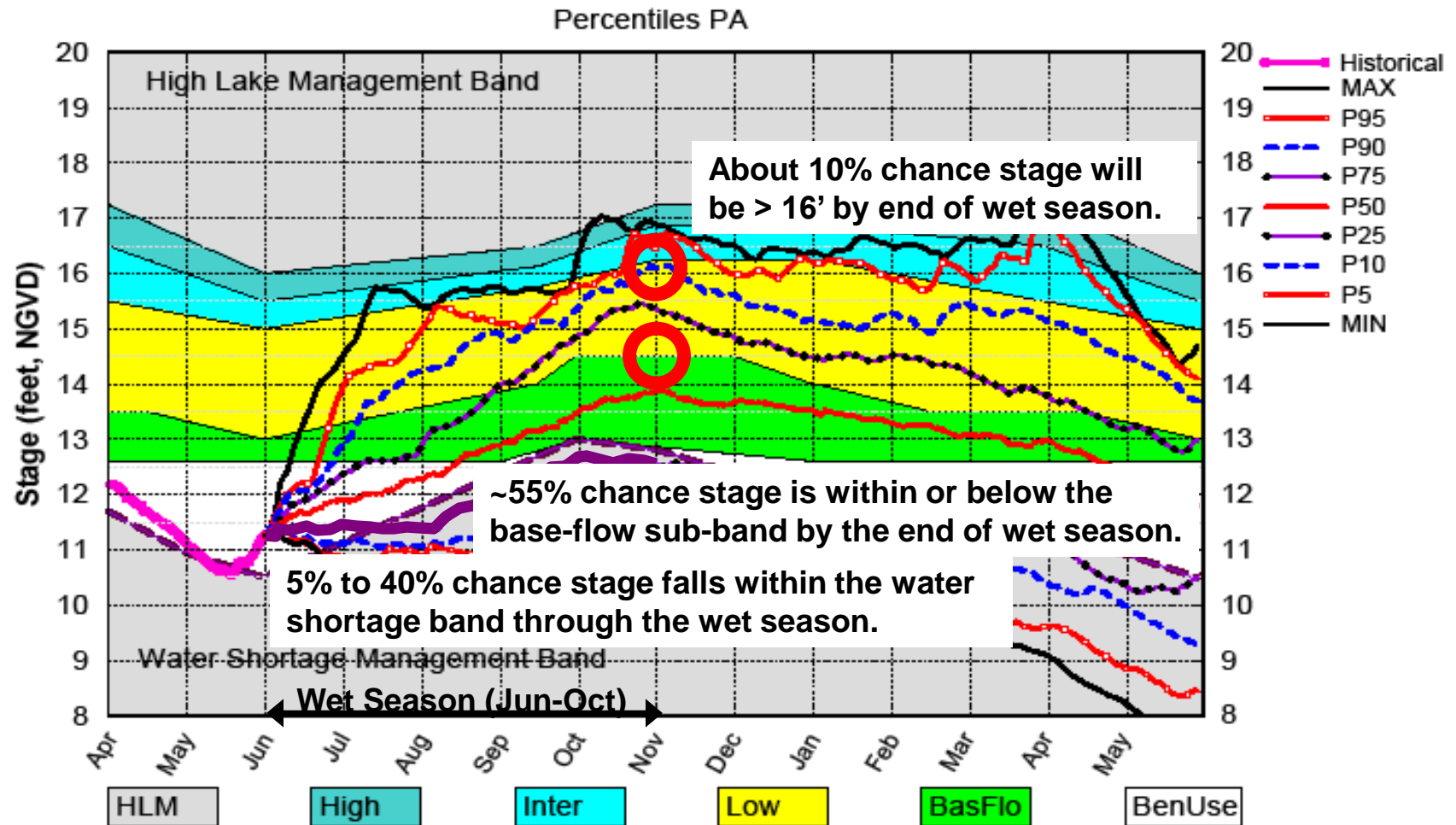




How will Lake Okeechobee stages behave for the remainder of the dry season?

- **Depends on rainfall**
- **Projections provided monthly by SFWMD Hydrologic and Environmental Systems Modeling (HESM) Department**
- **Position Analysis**
 - **Each year starts with current hydrologic conditions**
 - **41 1-yr simulations of system response to historical rainfall conditions**
 - **Statistical summaries used to display projections**

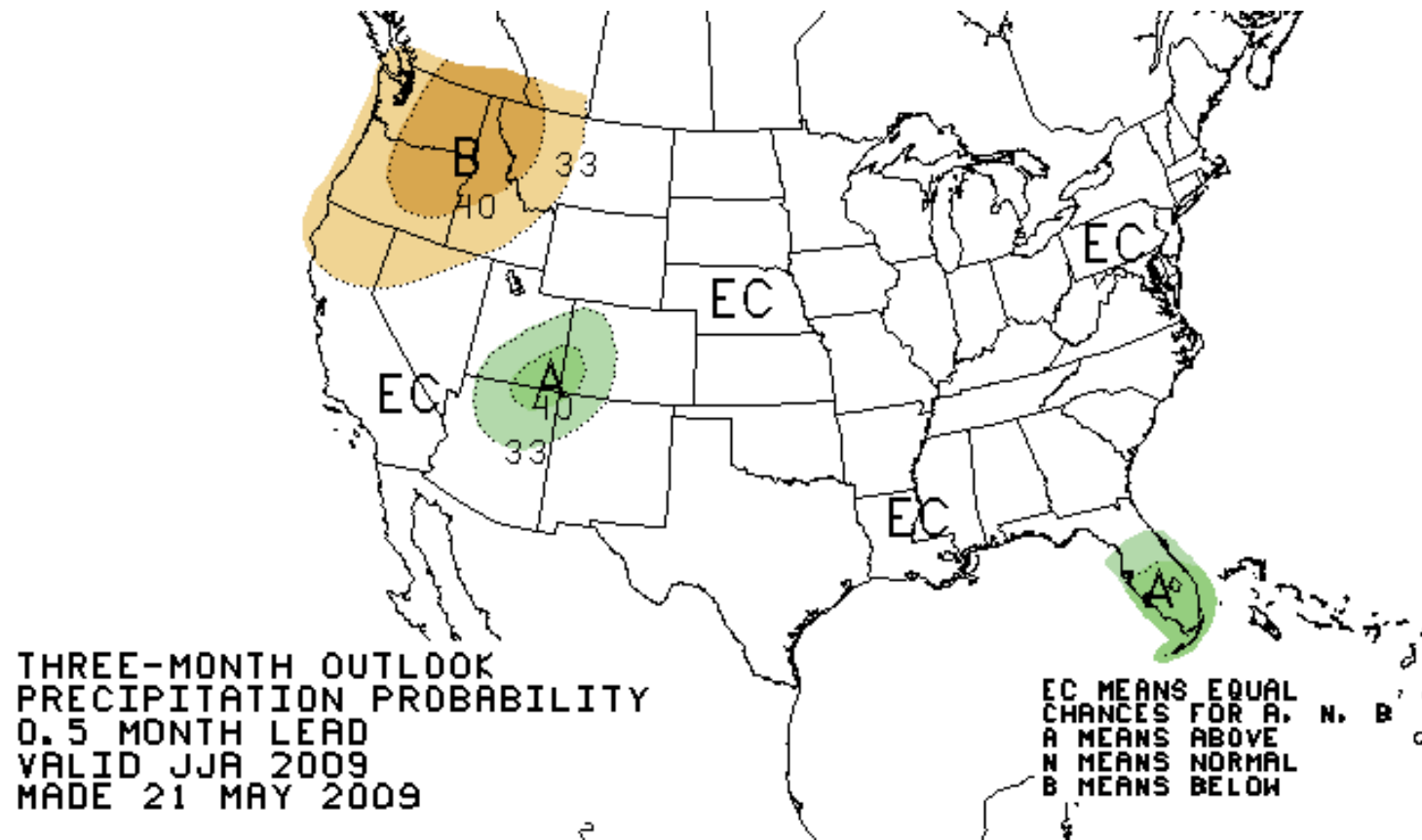
Lake Okeechobee SFWMM June 2009 Position Analysis



(See assumptions on the Position Analysis Results website)

Seasonal Precipitation Outlook

National Climate Prediction Center (CPC)



The CPC outlook for June-July-Aug shows higher chances for above normal rainfall conditions.

[3-month outlook](#)

Questions?



Continue

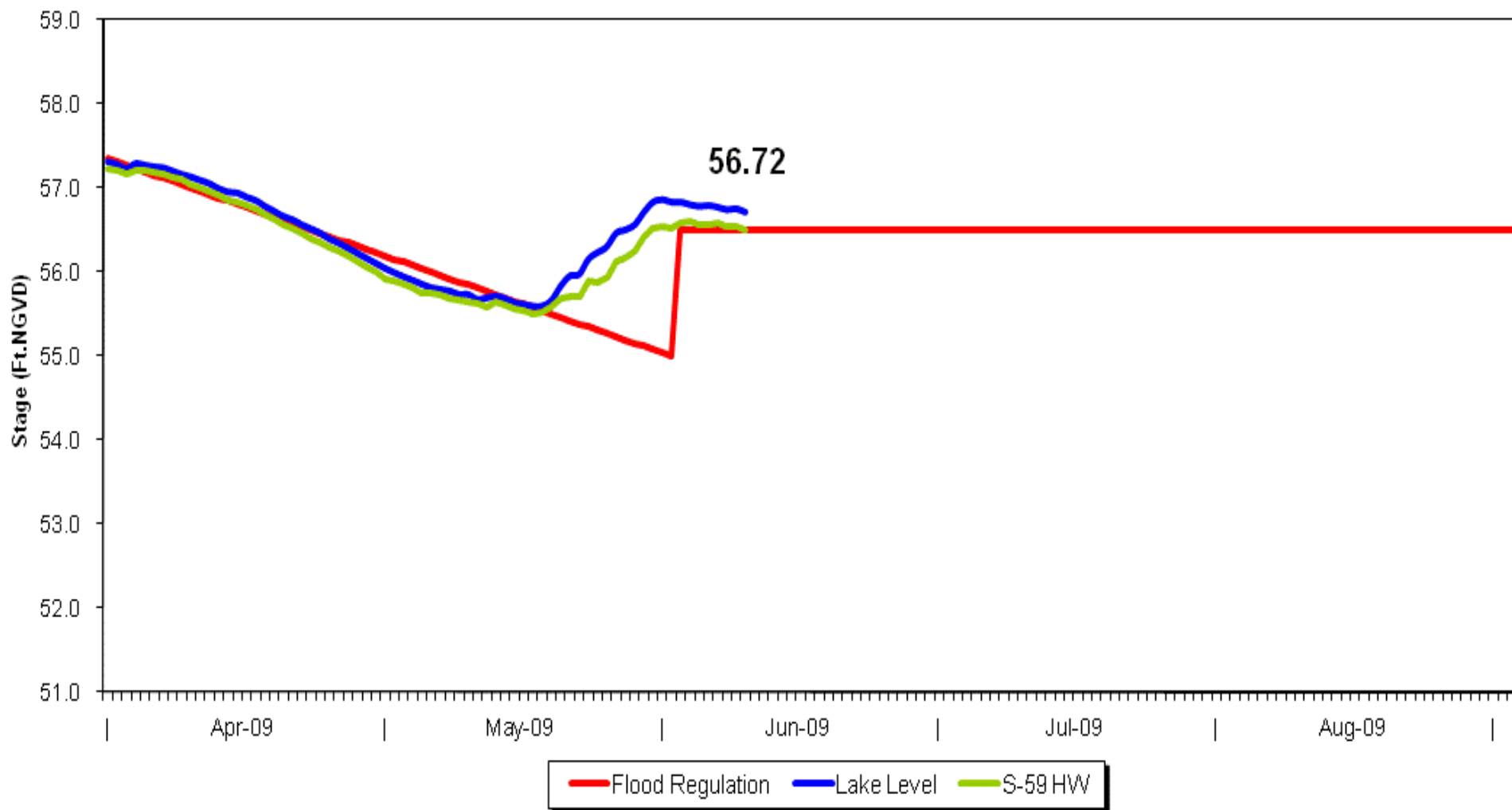
East Lake Tohopekaliga

Published 6/9/2009

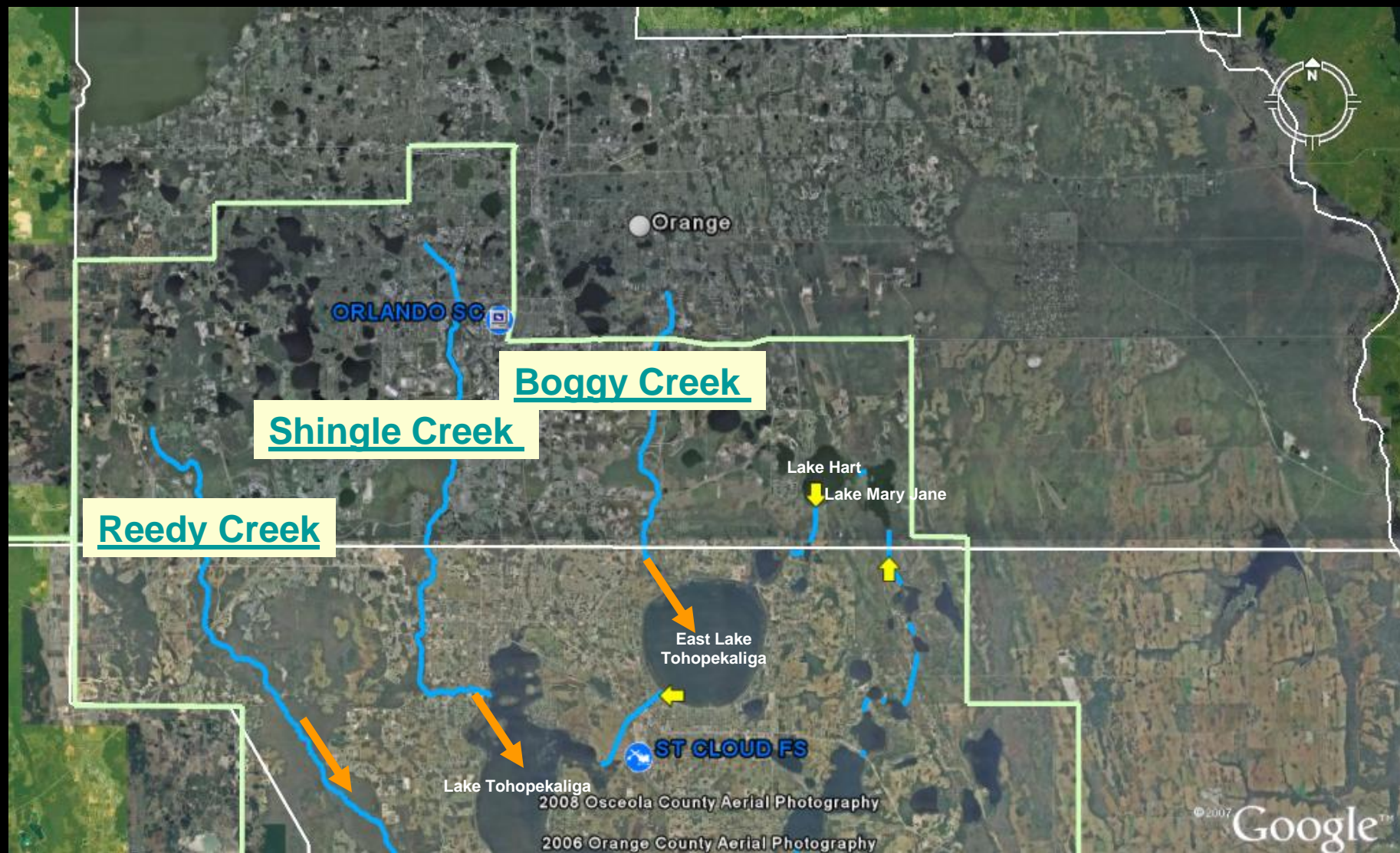
East Lake Tohopekaliga

Published

6/9/2009



State of the System Upper Chain of Lakes

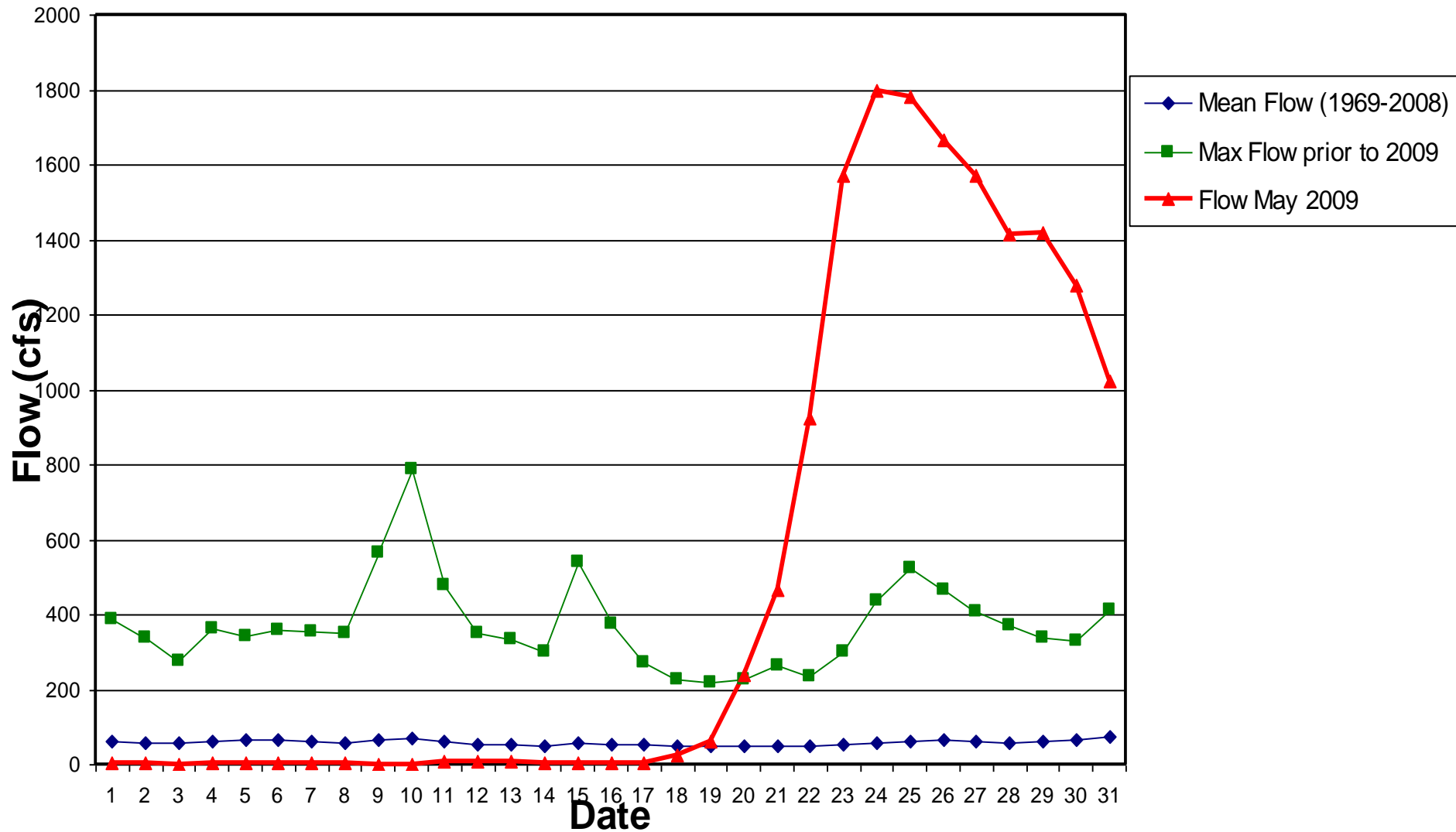




Shingle Creek

USGS

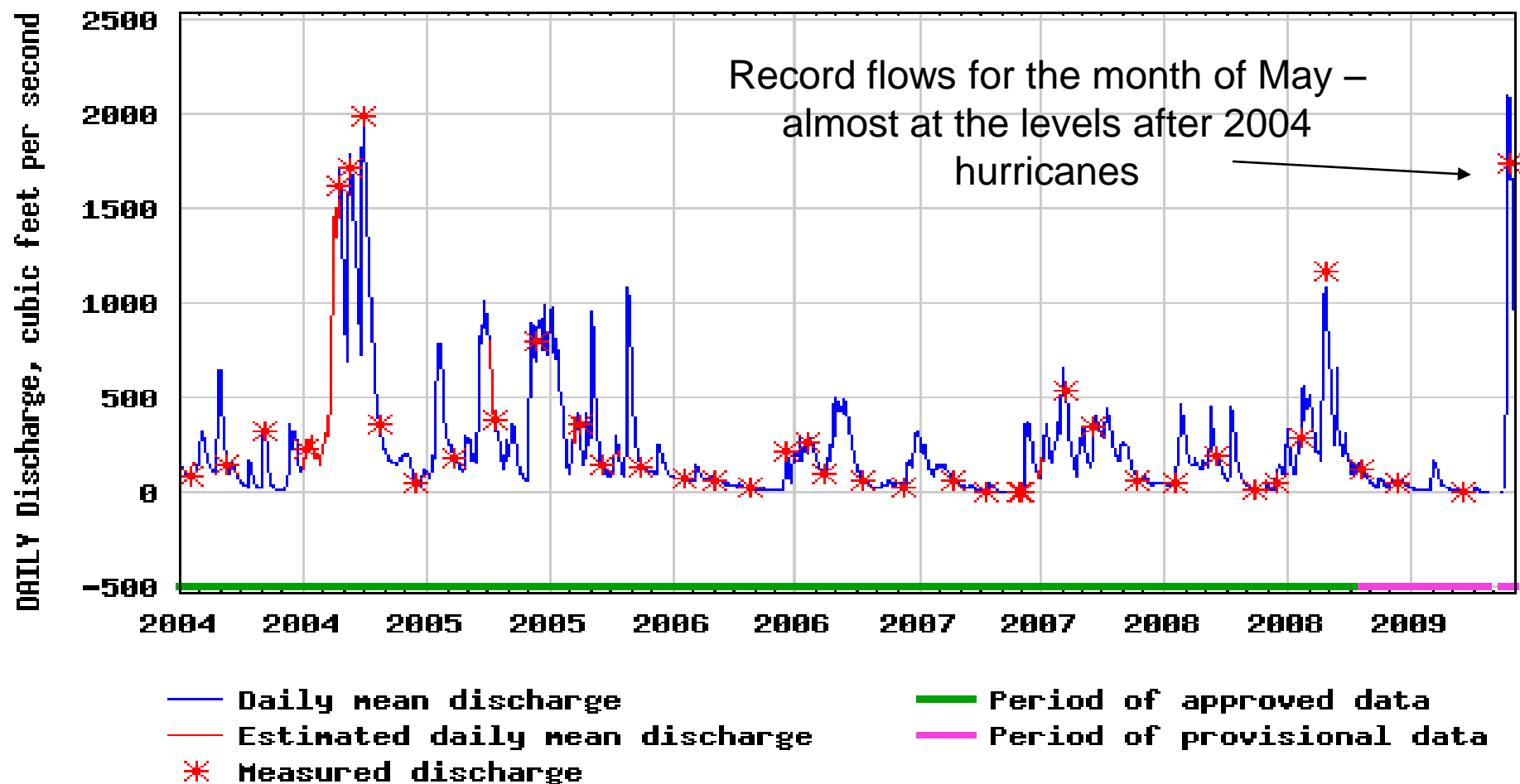
May Flows



Upper Chain of Lakes Shingle Creek



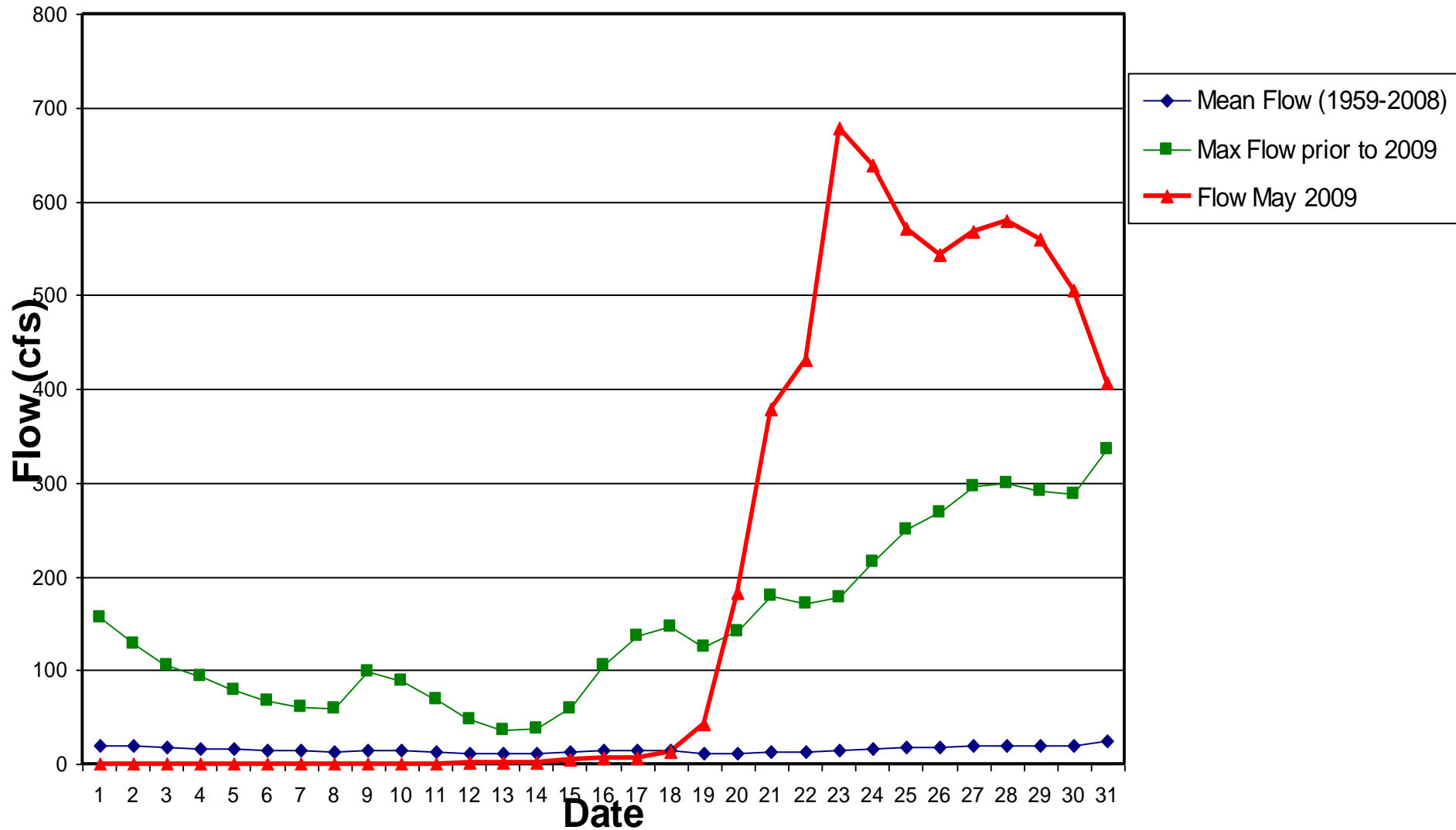
USGS 02264495 SHINGLE CREEK AT CAMPBELL, FL





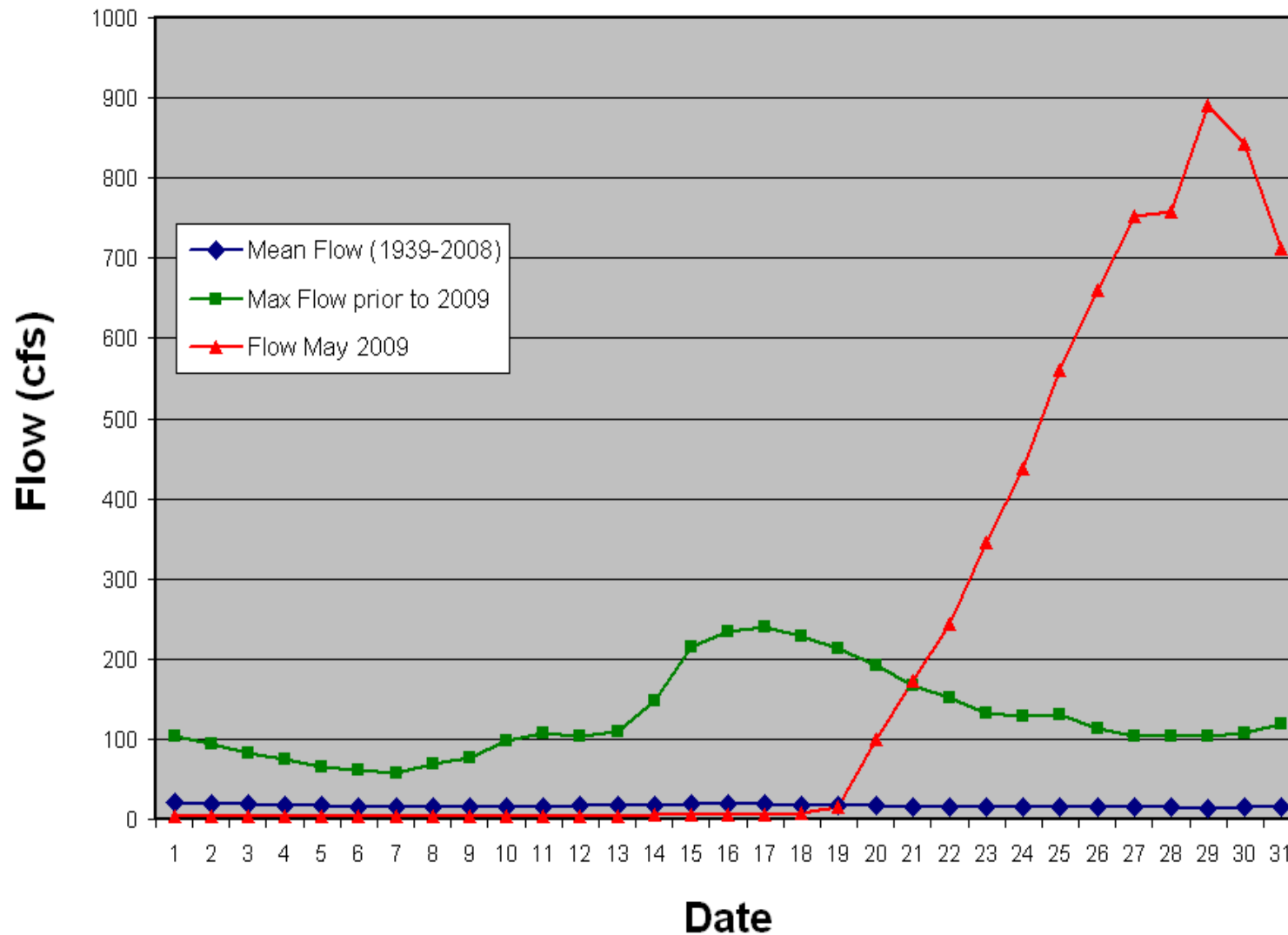
Boggy Creek

May Flows



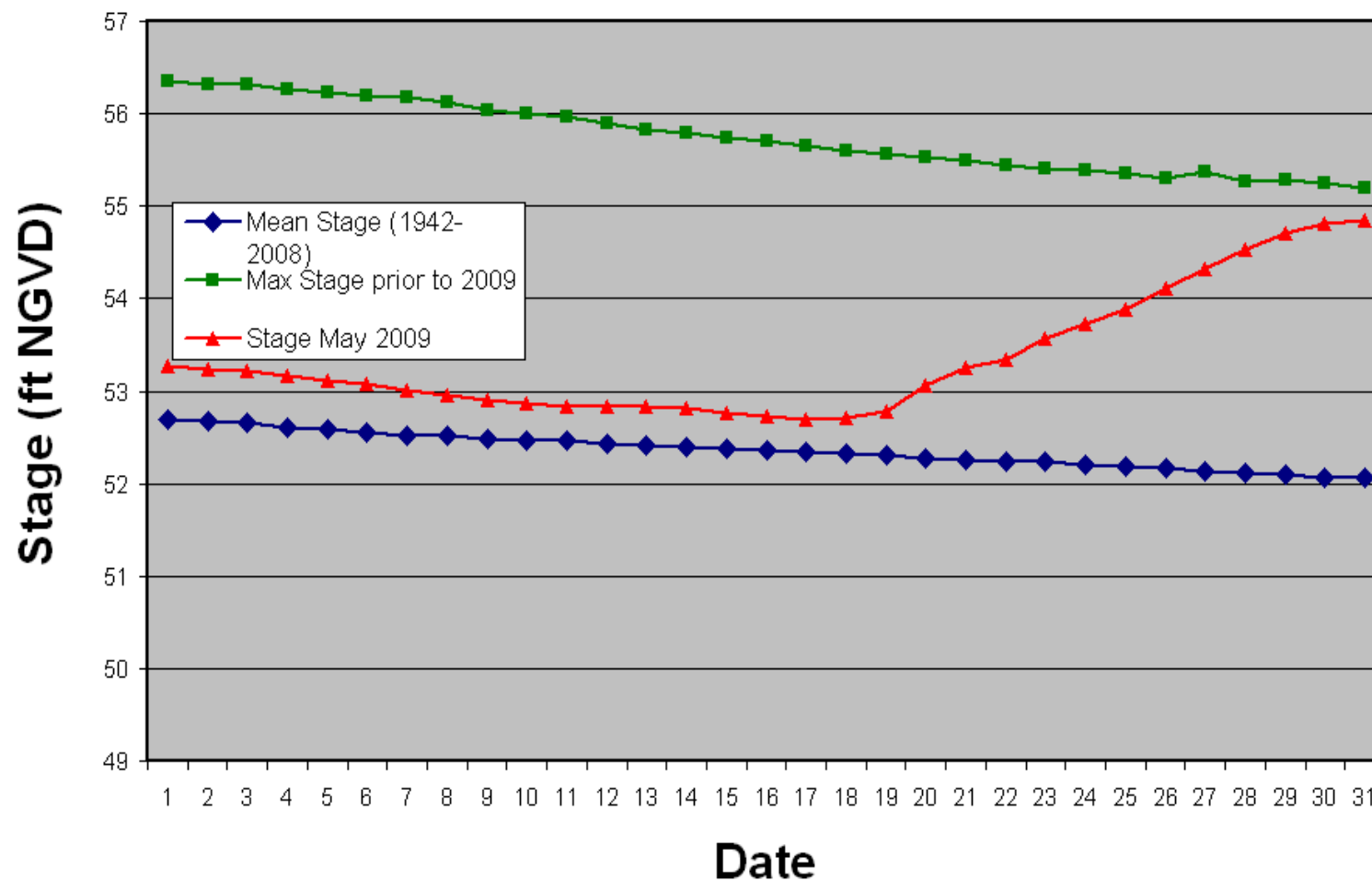
Reedy Creek

May Flows



Lake Toho

May Stages



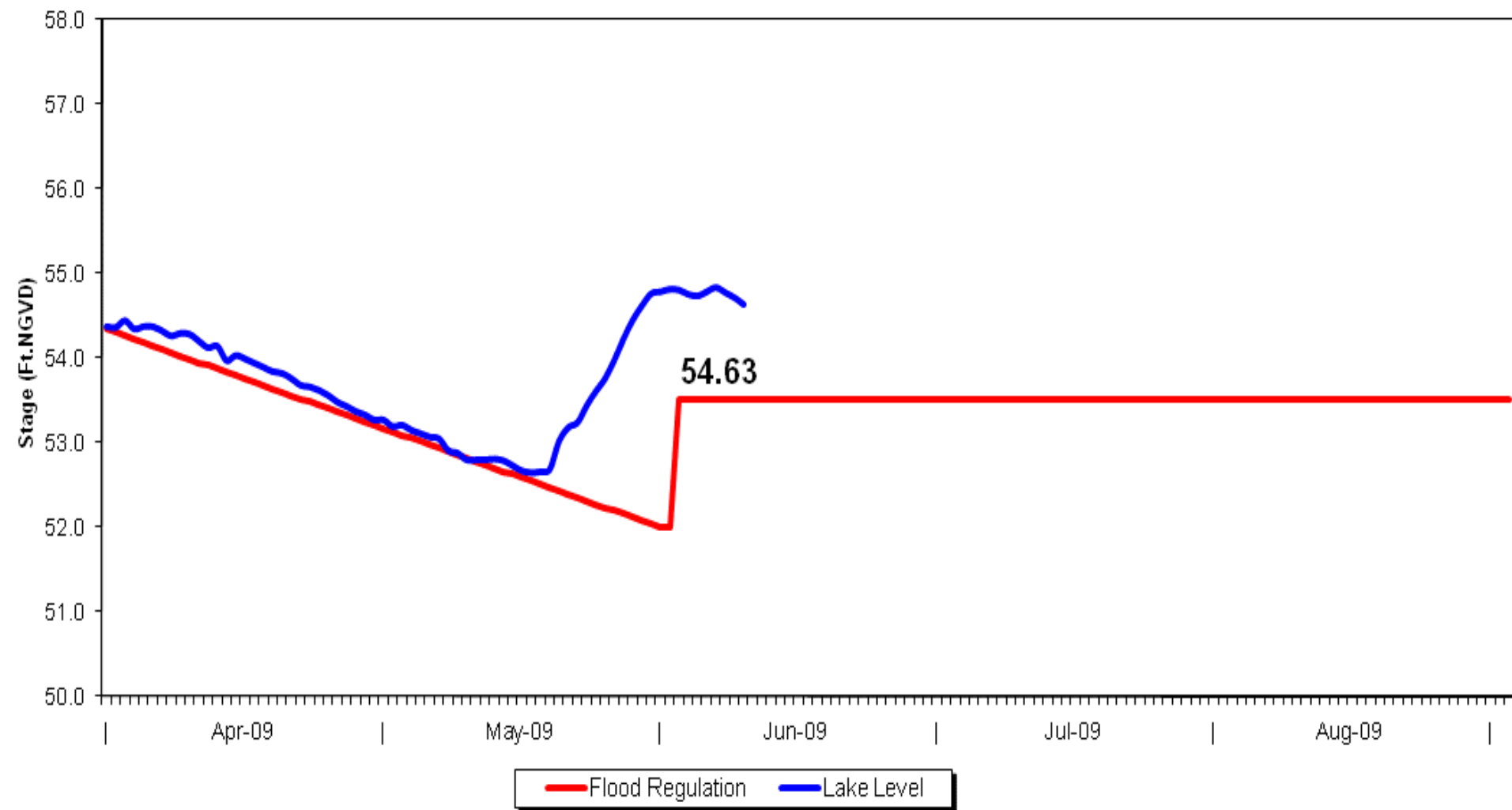
Lake Tohopekaliga

Published 6/9/2009

Lake Tohopekaliga

Published

6/9/2009



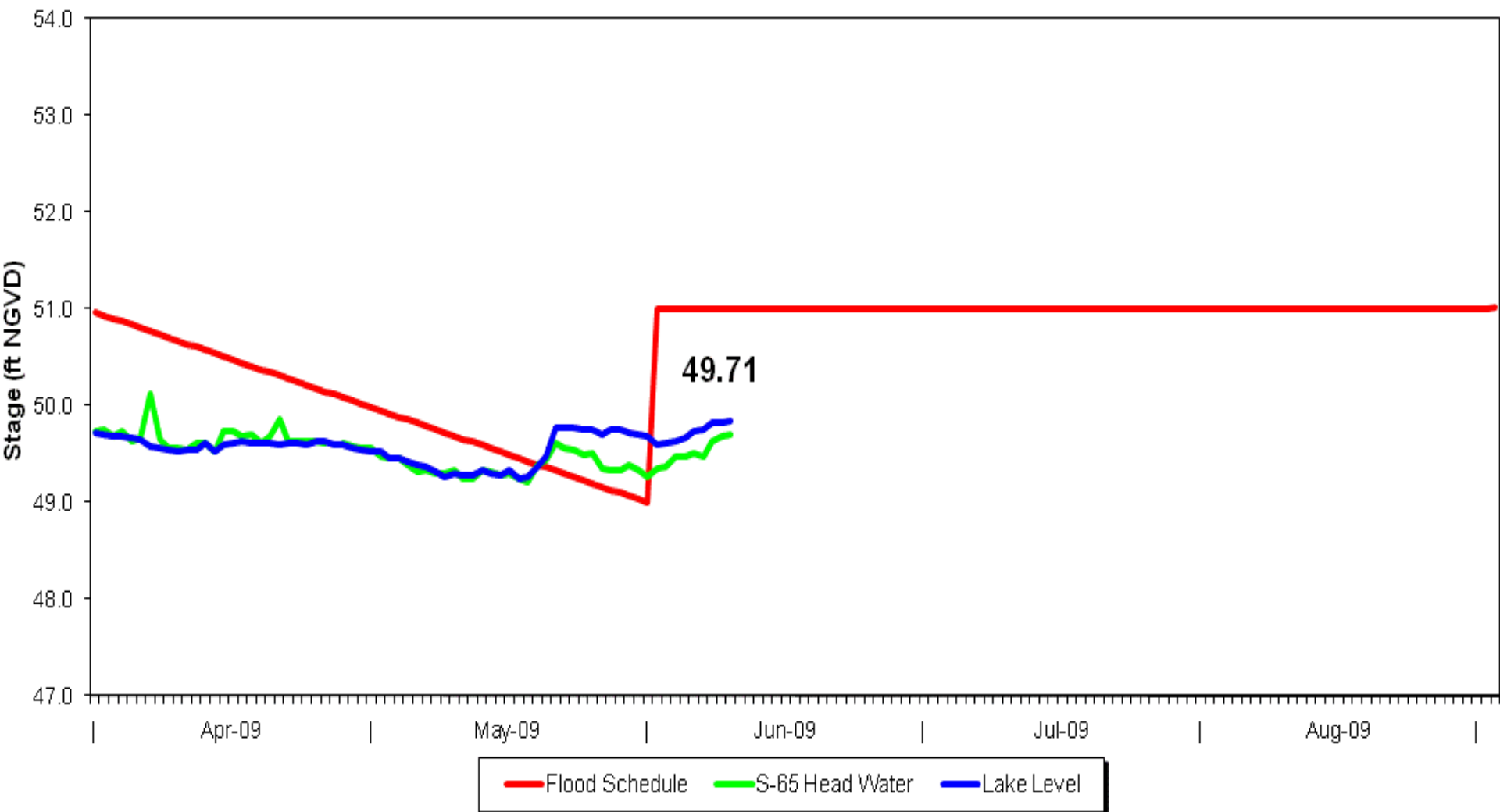
Lake Kissimmee

Published 6/9/2009

Lake Kissimmee

Published:

06/09/09



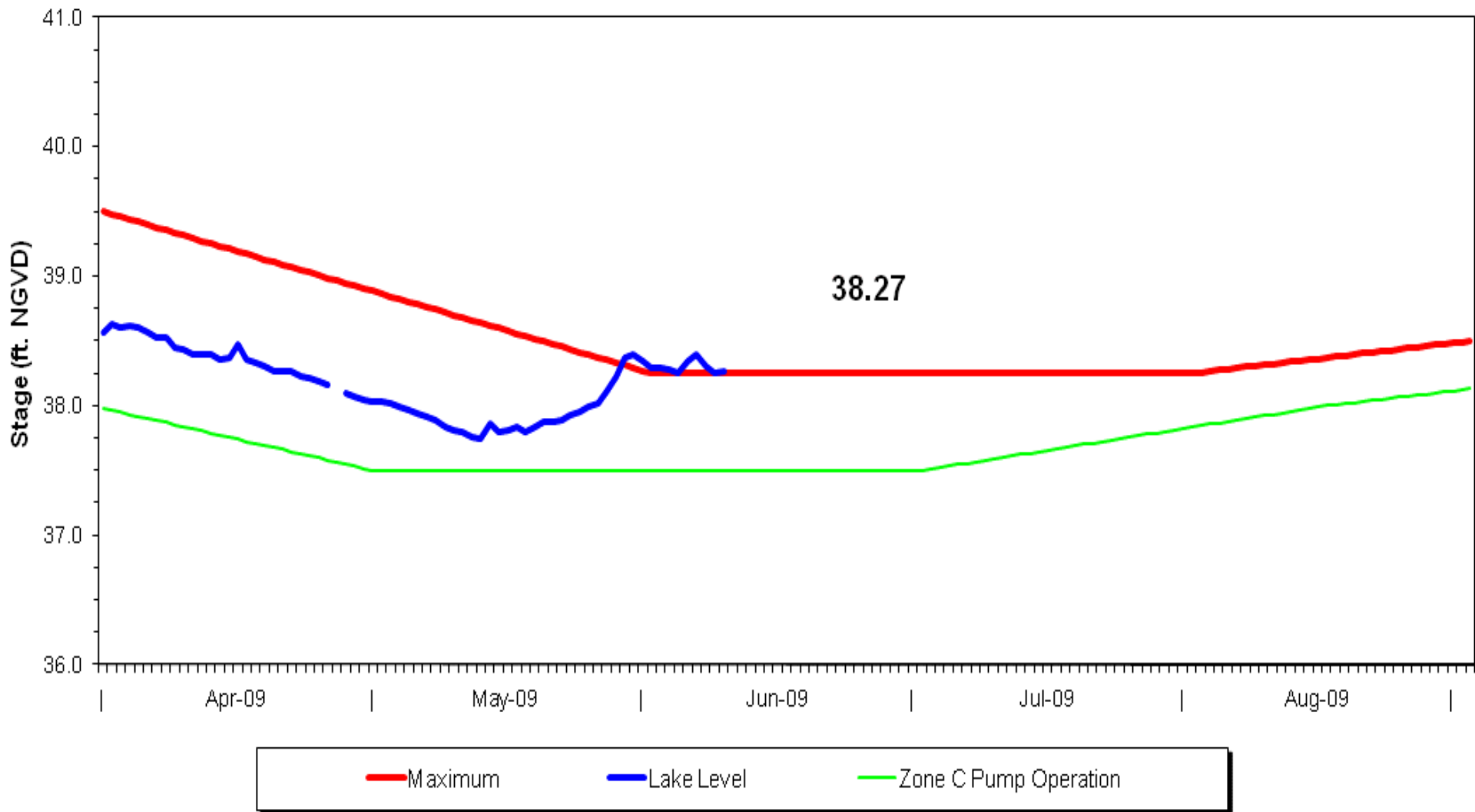
Lake Istokpoga

Published 6/9/2009

Lake Istokpoga

Published:

6/9/2009

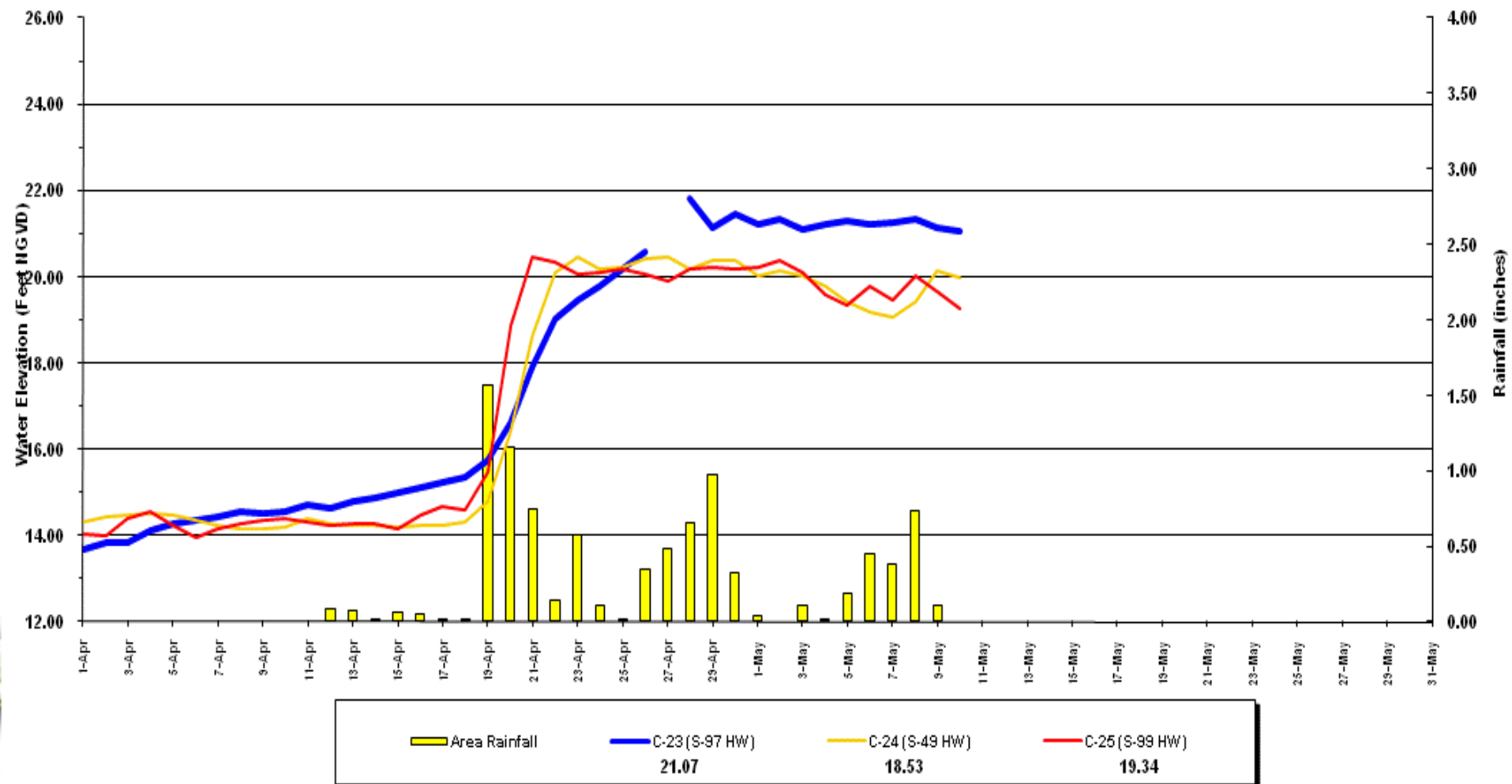


St. Lucie Structures on C23, C24 & C25 Canals

Published 6/9/2009

St Lucie Structures on C23, C24 & C25 Canals

Published: 06/09/09



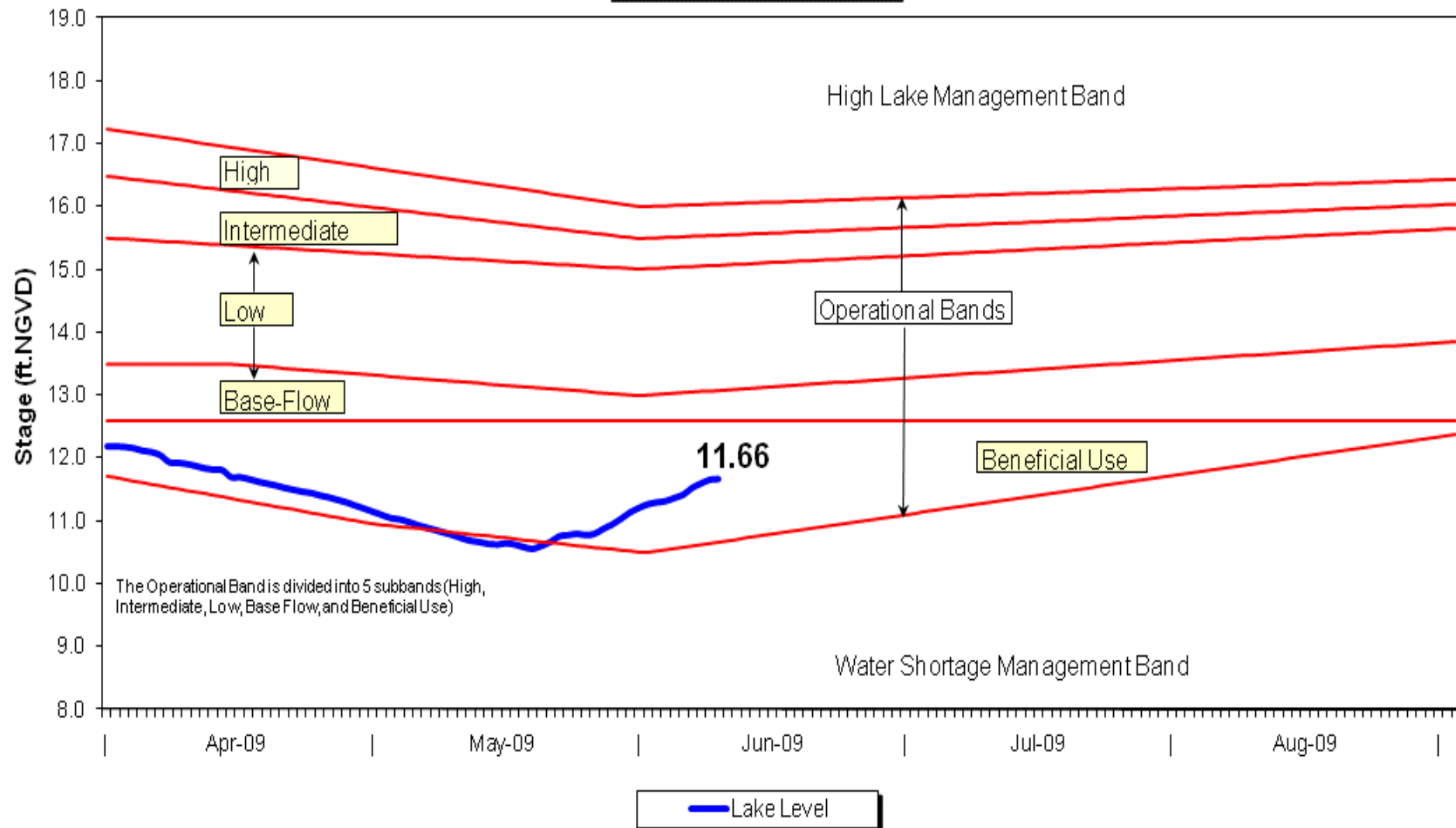
Lake Okeechobee

Published 6/9/2009

Lake Okeechobee

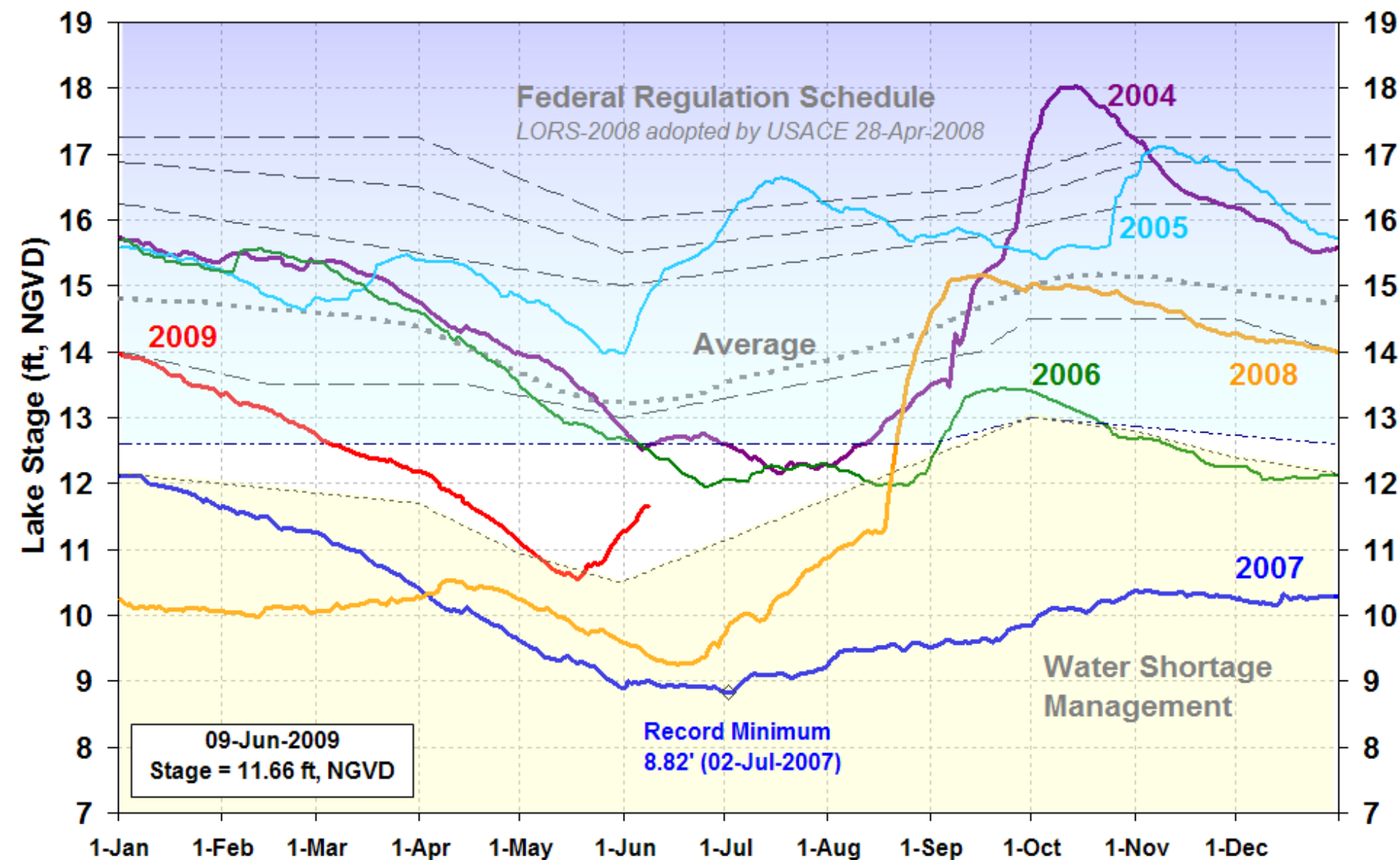
Published:

6/9/2009



Lake Okeechobee Stage Hydrograph Comparison

- - - Average(1965-2006) 2004 2005 2006 2007 2008 2009

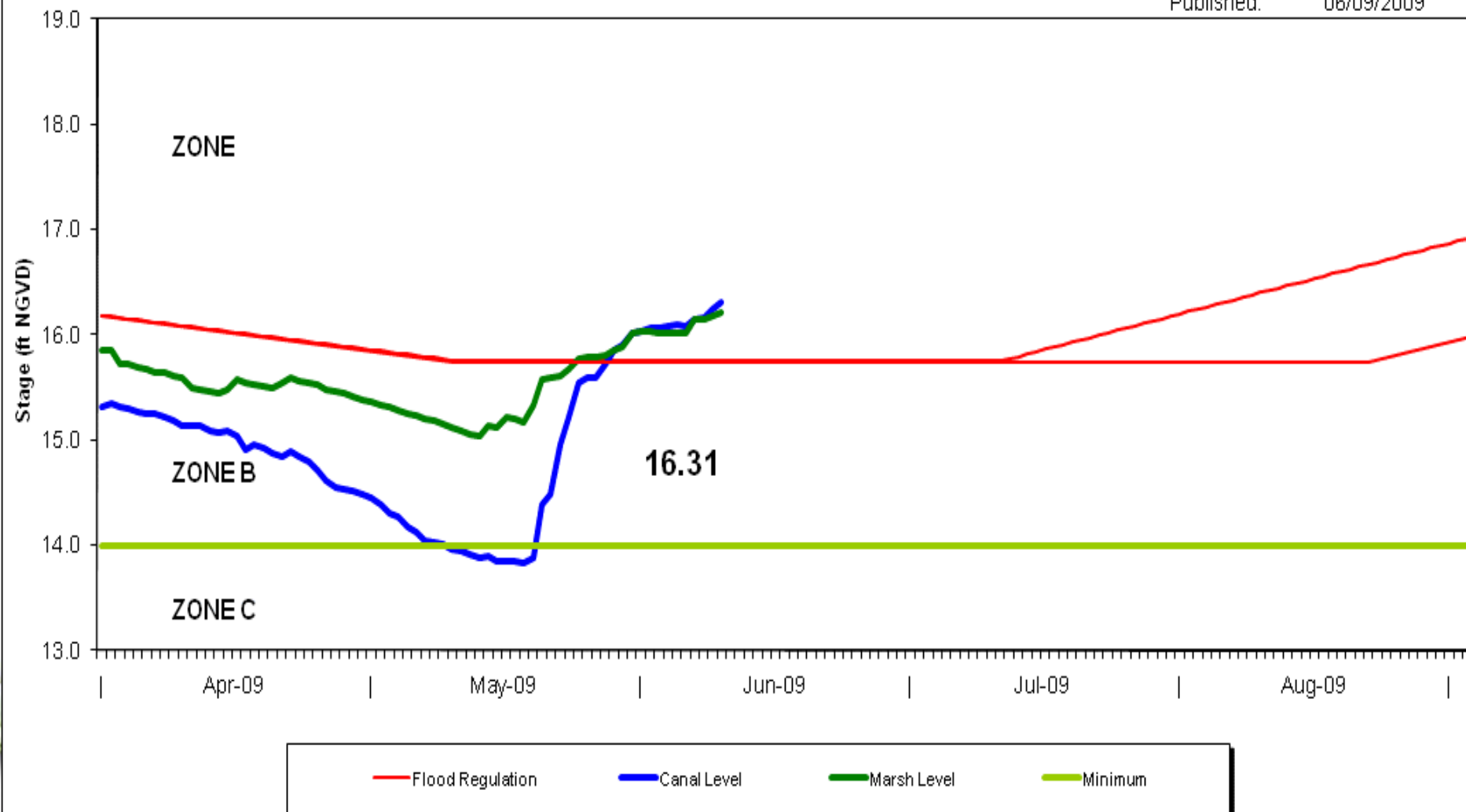


Water Conservation Area 1

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Water Conservation Area 1

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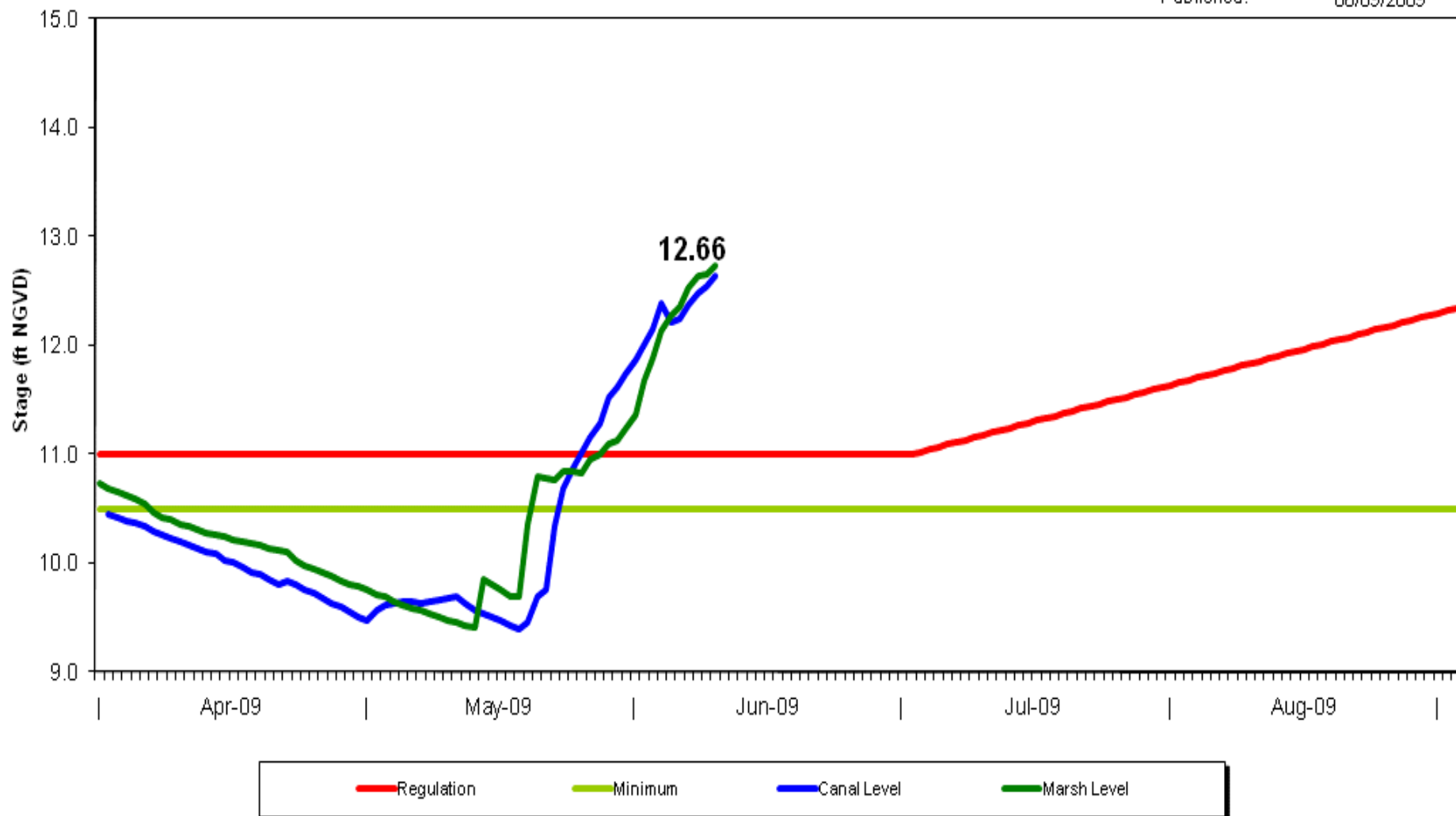


Water Conservation Area 2A

Published 6/9/2009

Water Conservation Area 2A

Published: 06/09/2009

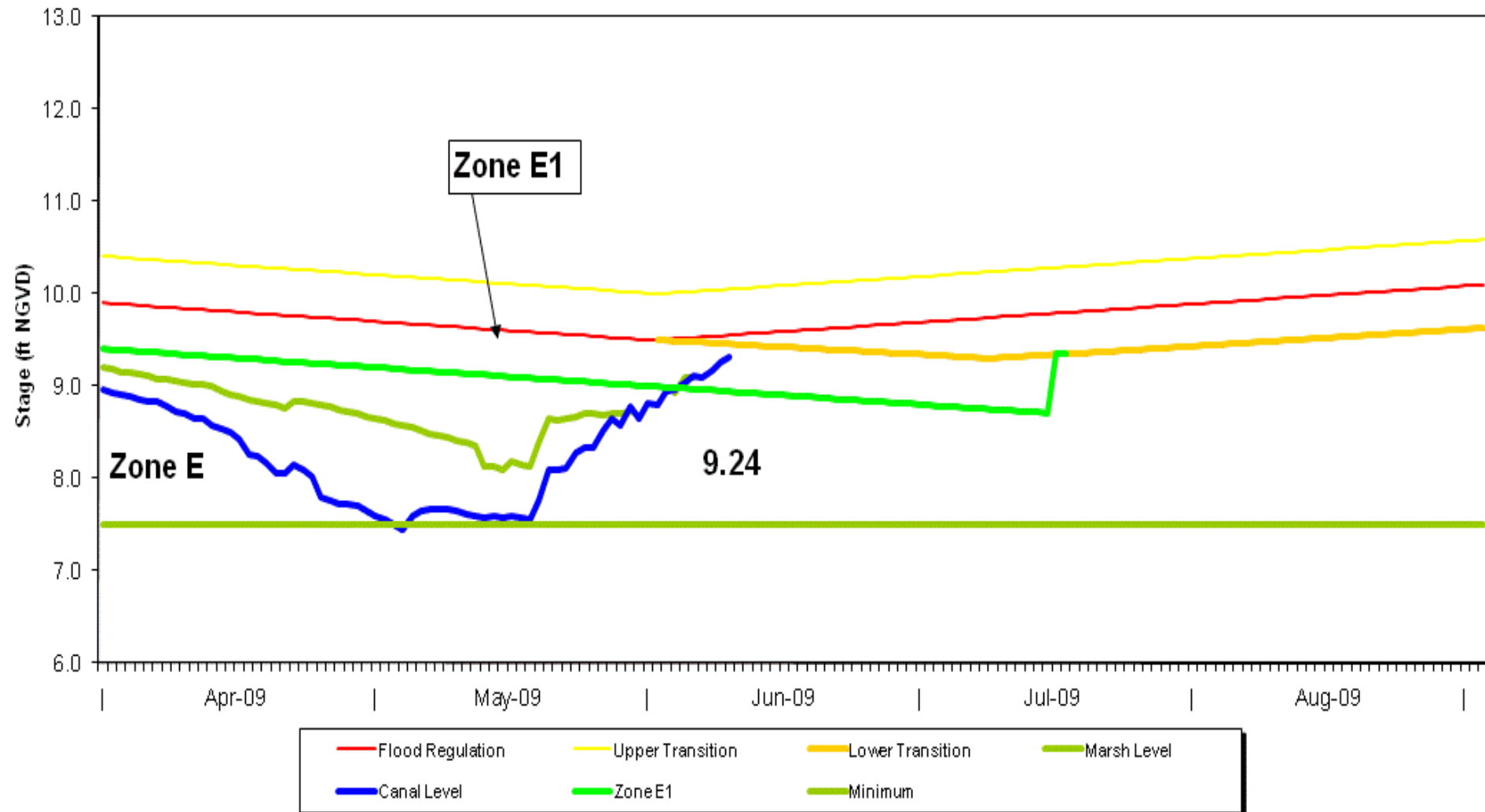


Water Conservation Area 3A

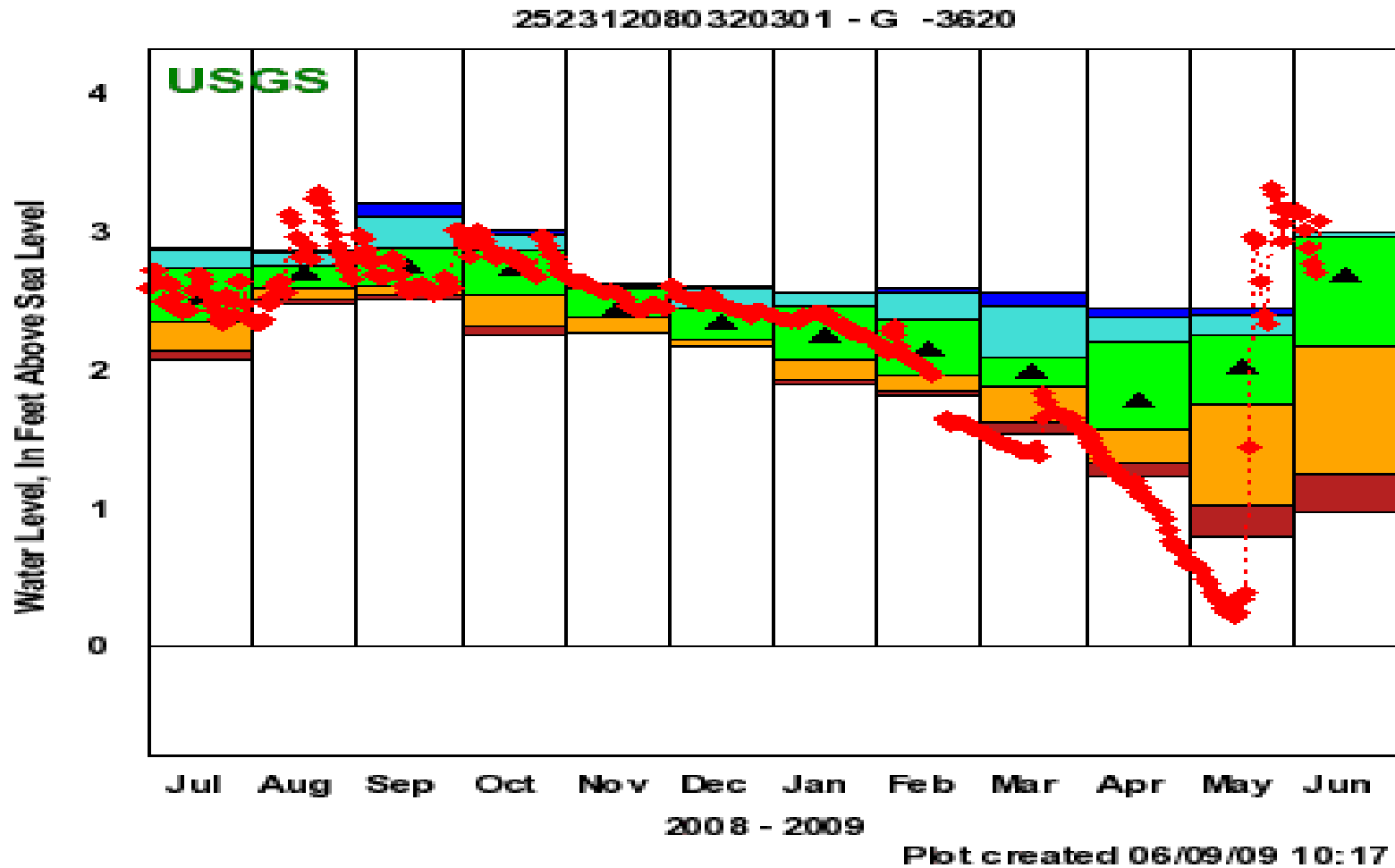
Published 6/9/2009

Water Conservation Area 3A

Published: 06/09/2009



<http://groundwaterwatch.usgs.gov/AWLSites.asp?S=252312080320301&ncd=rtn>



BIG CYPRESS BASIN

OUR MISSION ELEMENTS



FLOOD
CONTROL

NATURAL
SYSTEMS

WATER
QUALITY

WATER
SUPPLY

BIG CYPRESS BASIN BOARD MEMBERS

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John F. Sorey, III
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Elisabeth Anderson
Dr. Jon Staiger

BIG CYPRESS BASIN CONTACTS

Clarence S. Tears, Jr.
Director - BCB

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Chief Engineer

Stephen Ladd
Director - Field Operations

For more information or to receive a copy of our monthly
operation log please contact:



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SOUTH FLORIDA WATER MANAGEMENT DISTRICT

BIG CYPRESS BASIN



Golden Gate Main Weir #1

OPERATION SCHEDULE OF WATER CONTROL STRUCTURES

JUNE 2008

sfwmd.gov



INTRODUCTION

The Big Cypress Basin presently operates a network of 162 miles of primary canals, 46 water control structures and four pumps to provide flood control during the wet season and to protect the water supplies and environmental resources from overdrainage of fresh water during the dry season (Map 1).

The resource protection objectives include prevention of saltwater intrusion into freshwater supplies, recharging of the public water supply wellfields, and protection and enhancement of the regional ecosystem functions.

These objectives are achieved through scheduled operations of the water control structures to accommodate quick removal of runoff during the wet season and partial or full closure of the gates during the dry season.

The schedule must have the flexibility to address the difficult balancing act of the transition from wet to dry season and, likewise, from dry to wet season, as well as anticipate and prepare for major storm or drought events.

To optimize the system, it is essential to constantly collect and analyze surfacewater and groundwater conditions, land development patterns, and rainfall data (rainfall intensity varies throughout the Basin).

Due to the many variables affecting the operation of the structures, such as the location of the structure, size of drainage area, adjacent land use, inflow from secondary drainage system, and gate operating mechanism, a single set of criteria does not work for the entire Basin. The criteria and schedule furnished here should not be considered fixed, but a guide, as we continue to monitor the performance of the gate operations and make improvements for more efficient water management.

RECHARGE – Water seepage through the ground to rejuvenate underground aquifers.

SALTWATER INTRUSION – The nearly irreversible process where the natural saltwater interface moves inland, usually as a result of reduction of freshwater head caused by overdrainage, insufficient recharge, drawdown by well pumpage, or large storm surge.

SECONDARY CANAL SYSTEM – Canal systems providing drainage to several individual users on a local scale. The secondary system ultimately drains into the primary canals. In Collier County, this system is operated by Collier County Stormwater Management Department.

SPILLWAY – A special water control structure designed to efficiently and carefully convey flood discharges that are not normally handled through regular outlets. The spillway also acts as a barrier to prevent overdrainage during the dry season.

WATER CONTROL STRUCTURE – Any man-made feature used to control water elevation and/or flow.

WATER MANAGEMENT DISTRICT – One of five quasi-state governmental entities created in 1972 by the Florida State Legislature to serve Florida's demanding and diverse water needs.

WEIR – A small dam in a canal, usually with a specially shaped crest (top) to enable water to move more freely over the top.

WEIR CREST – The highest elevation on a weir, above which water begins to flow over.

WELLFIELD – In reference to underground water supply wells, that area that is influenced by a group of wells and their pumpage.

WET SEASON – The time beginning in June and ending in October characterized by late afternoon thundershowers and tropical weather activities (nearly 80% of the annual rainfall total).

GLOSSARY

AMIL GATE – An automated gate which maintains a constant upstream water elevation.

AVERAGE ANNUAL RAINFALL – The average (mean) annual rainfall for Collier County is approximately 53 inches per year with historic variability from an annual low of 30 inches to a high in excess of 83 inches.

AQUIFER – A layer of underground permeable rock, sand or gravel which is saturated with water.

BIG CYPRESS BASIN(BCB) – One of two administrative units in the South Florida Water Management District with its own Governing Board, encompassing all of Collier County and part of Monroe County whose purpose is to provide flood control, enhance water supply, and protect water quality and the environment.

DRY SEASON – The time generally beginning in October and ending May characterized by less rainfall (approximately 20% of annual rainfall total).

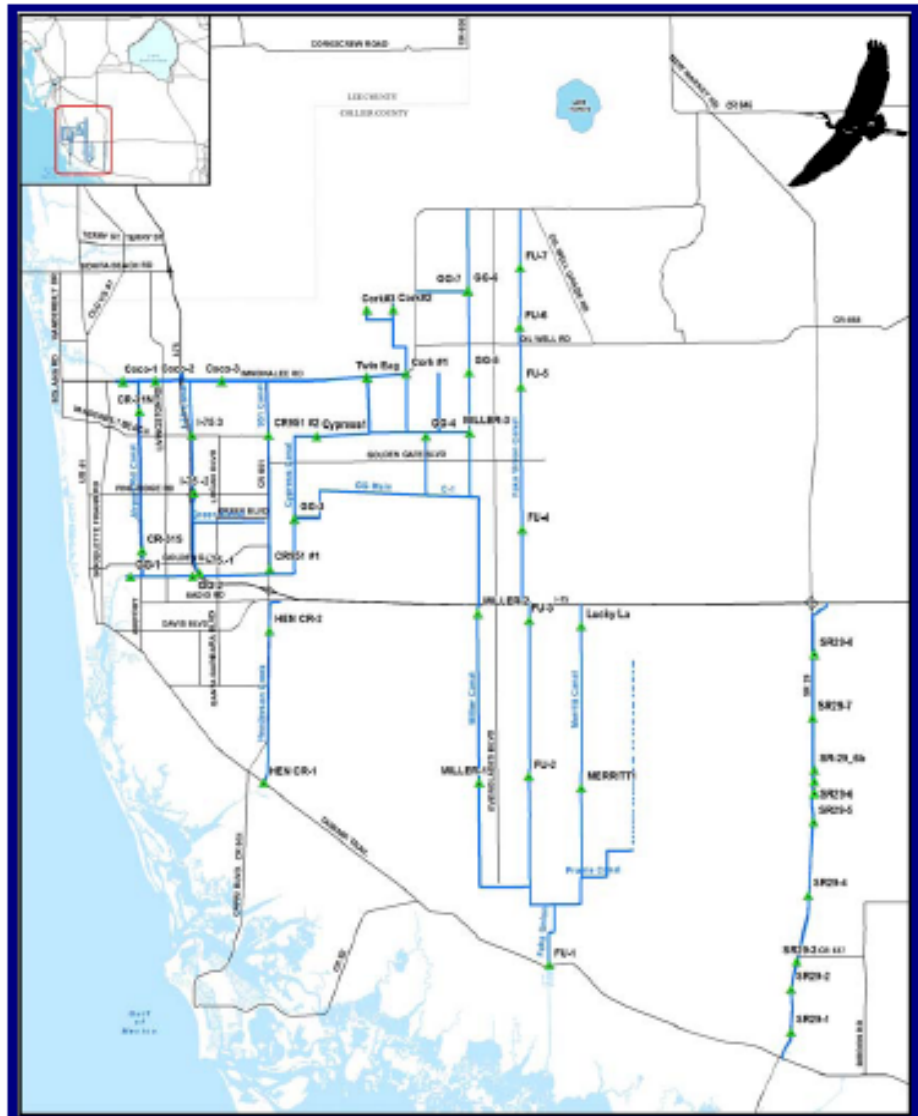
GATE – A component of a water control structure that has the flexibility to remain closed during dry weather to help maintain a desired groundwater table and can be opened to release water during wet weather.

NGVD/NAVD – Abbreviations for “National Geodetic Vertical Datum” of 1929 which is used as a reference for measuring elevation, similar to mean sea level and “North American Vertical Datum” of 1988 which is approximately 1.3 feet lower than NGVD.

OBERMYER GATED SPILLWAY - A spillway consisting of steel gate panels, the operation heights of which are controlled by inflatable air bladders.

PRIMARY CANAL SYSTEM – Canal systems that are the primary drainage component on a regional scale, acting as outfall from secondary canals. In Collier County, these are operated by BCB.

Map 1



BASIC OPERATING SCHEDULE OF THE BIG CYPRESS BASIN WATER CONTROL STRUCTURE

SERIAL #	STRUCTURE	TYPE	WEIR CREST ELEVATION	OPERATING ELEVATIONS			
				WET SEASON		DRY SEASON	
				OPEN AT	CLOSE AT	OPEN AT	CLOSE AT
1	Golden Gate Canal Weir #1	Hinged Crest Gated Weir	5.00 / -1.00	4.00	3.75	5.00	4.75
2	Golden Gate Canal Weir #2	Obertmeyer Gated Spillway	6.30/0.00	6.00	5.00	6.50	5.75
3	Golden Gate Canal Weir #3	Fixed Crest with 2 Gates	7.50	8.00	7.50	8.50	7.75
4	Golden Gate Canal Weir #4	Fixed Crest with 2 Gates	9.50	10.00	9.50	10.50	9.75
5	Golden Gate Canal Weir #5	Fixed Crest with 2 Gates	10.50	11.00	10.50	11.50	10.75
6	Golden Gate Canal Weir #6	Fixed Crest with V-Notch	15.80	15.80	14.80	16.30	15.80
7	Golden Gate Canal Weir #7	Fixed Crest with V-Notch	13.40	13.90	13.40	14.40	13.65
8	I-75 Canal Weir #1	Fixed Crest with 1 Gate	6.20	6.70	6.20	7.20	6.45
9	I-75 Canal Weir #2	Fixed Crest with 2 Gates	8.00	8.50	8.00	9.00	8.25
10	I-75 Canal Weir #3	Double Box Culvert with 2 Gates	9.50	10.00	9.00	11.00	9.50
11	Cypress Canal Weir 4A-1	Fixed Crest with 2 Gates	9.50	10.00	9.50	10.50	9.75
12	Airport Road Canal North	Amil Gate	8.50	7.50	----	8.50	----
13	Airport Road Canal South	Amil Gate	8.50	7.50	----	8.50	----
14	Faka Union Canal Weir #1	Fixed Crest	2.00	----	----	----	----
15	Faka Union Canal Weir #2	Fixed Crest with Steel Gates	3.87	6.20	5.20	6.20	5.70
16	Faka Union Canal Weir #3	Fixed Crest with V-Notch	6.20	6.70	6.20	7.20	6.45
17	Faka Union Canal Weir #4	Gated Spillway	12.50	12.50	11.00	13.00	12.50
18	Faka Union Canal Weir #5	Sheet Pile Weir with 12 Gates	11.00	13.50	12.50	14.50	13.50
19	Faka Union Canal Weir #6	Fixed Crest with V-Notch	14.50	15.00	14.50	15.50	14.75
20	Faka Union Canal Weir #7	Fixed Crest with V-Notch	16.70	16.70	15.70	17.20	16.70
21	Miller Canal Weir #1	Fixed Crest with Steel Gates	4.15	5.00	4.00	5.00	4.50
22	Miller Canal Weir #2	Fixed Crest with V-Notch	6.20	6.70	6.20	7.20	6.45
23	Miller Canal Weir #3	Fixed Crest with V-Notch	10.50	10.50	9.50	10.50	10.00
24	Lucky Lake Weir	Fixed Crest with 8 Steel Gates	4.50	7.00	6.50	9.80	9.30
25	McCrith Canal Weir #1	Adjustable Concrete Block Stop Logs	9.02	5.50	4.00	6.50	5.50
26	Henderson Creek Weir #1	Gated Spillway	5.00	5.50	4.00	6.50	5.50
		Flap Gate	0.50	5.75	5.50	5.75	5.50
		East Side Channel	3.32	5.00	4.00	6.00	5.50
		West Side Channel	3.45	4.50	3.45	5.00	4.50
27	Henderson Creek Weir #2	Gated Spillway	10.00	10.00	8.00	11.00	9.50
28	Cocohatchee Canal Weir #1	Gated Spillway	6.50	6.70	4.00	6.70	5.20
29	Cocohatchee Canal Weir #2	Gated Spillway	10.00	10.20	8.00	10.20	8.70
30	Cocohatchee Canal Weir #3	Gated Spillway	12.00	11.50	10.00	11.80	10.80
31	S.R. 29 Canal Weir #1	Fixed Crest with Removable Steel Sheets	3.22 **	2.72	1.22	3.22	2.22
32	S.R. 29 Canal Weir #2	Fixed Crest with Removable Steel Sheets	3.56 **	3.06	1.56	3.56	2.56
33	S.R. 29 Canal Weir #3	Fixed Crest with Removable Steel Sheets	5.51 **	4.91	3.41	5.51	4.51
34	S.R. 29 Canal Weir #4	Fixed Crest with Removable Steel Sheets	8.08 **	7.58	6.08	8.08	7.08
35	S.R. 29 Canal Weir #5	Fixed Crest with Removable Steel Sheets	11.22 **	10.72	9.22	11.22	10.22
36	S.R. 29 Canal Weir #6	NOT IN SERVICE					
37	S.R. 29 Canal Weir #6A	Gated Weir	11.13	10.63	9.13	11.13	10.63
38	S.R. 29 Canal Weir #6B	Gated Weir	11.14	10.64	9.54	11.14	10.64
39	S.R. 29 Canal Weir #7	Fixed Crest with Removable Steel Sheets	11.14 **	10.64	9.14	11.14	10.14
40	S.R. 29 Canal Weir #8	Fixed Crest with Removable Steel Sheets	12.57 **	12.07	10.57	12.57	11.57
41	Corkscrew Canal #1	Double Box Culvert with 2 Gates	14.50*	11.00	9.00	12.50	11.50
42	Corkscrew Canal #2	2 - 10' X 10' Gated Box Culverts	15.50*	11.50	10.00	12.50	11.50
43	Corkscrew Canal #3	1 - 48 inch Culvert with Slide Gate	15.50*	12.50	11.00	13.50	12.50
44	Twin Eagles	Gated Spillway	14.50	12.50	11.00	13.50	12.50
45	CR951-1	Double Box Culvert with 2 Gates	12.00*	8.00	7.00	9.00	8.00
46	CR951-2	Double Box Culvert with 2 Gates	12.00**	12.00	10.00	12.50	10.50

* - Top of culvert

** - Elevation of top of concrete headwall, not weir crest


All elevations are in NGVD 29

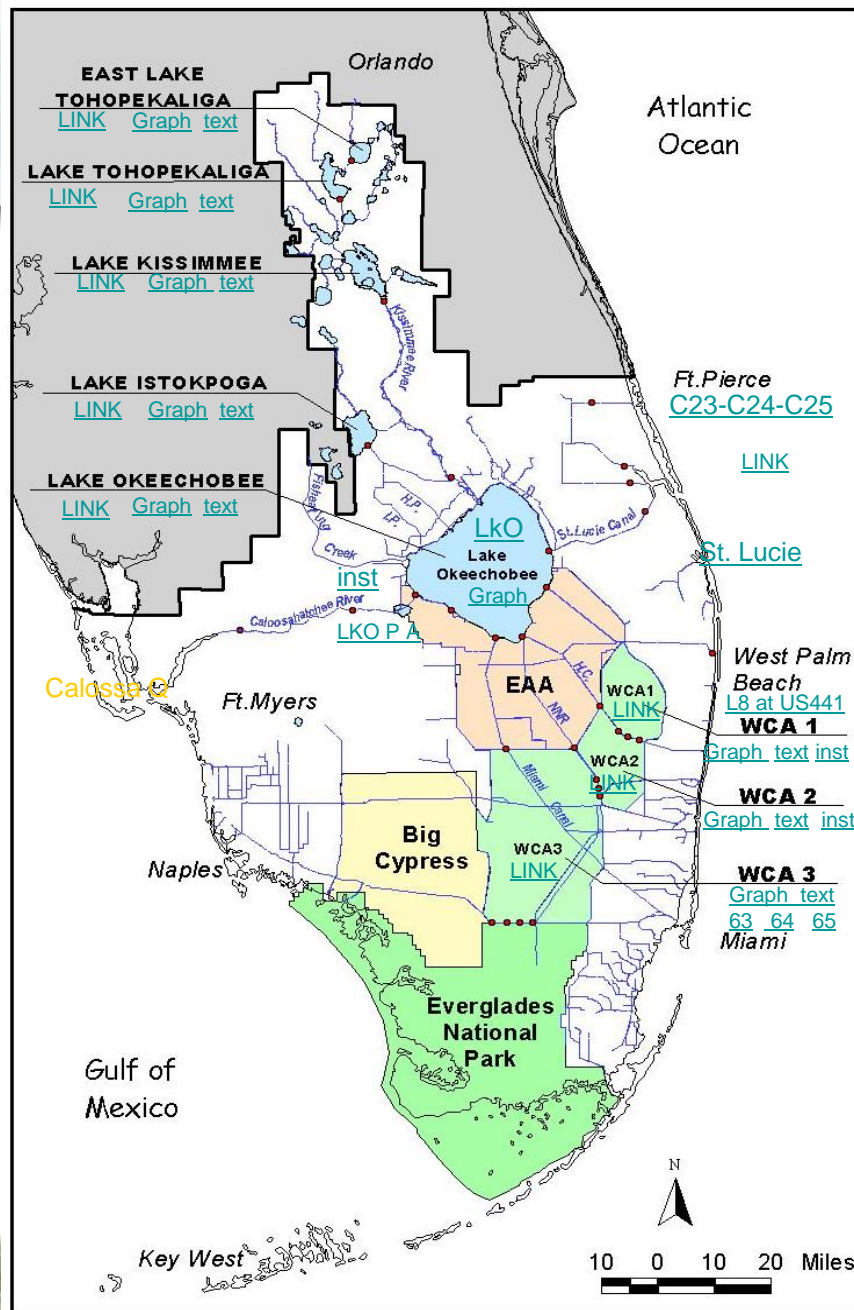
Report generation started at 06/10/2009 09:13:10 [List Hidden Sites](#)

BIG_CYPRESS_BASIN

Click on a record below to view Detailed Data.

Stage at - (Feet, NGVD) Gates - (Opening in Feet)
Pumps - (Revolutions per Minute) Weirs - (Crest Elev Feet, NGVD)

db	SITE	UPSTREAM	DOWNSTREAM	Flow	STATE	1	2	3	4	5	6
	BCA10 (hide)	4.22									
	COC951 (hide)	8.63									
	COC01 (hide)	6.50	.83	0	ALL GATES CLOSED	0	0.02				
<ul style="list-style-type: none"> UPSTREAM= 6.50 DOWNSTREAM= 0.86 GATE(1)= 0.00 GATE(2)= 0.03 RAINFALL SAMPLING SITE= 0.00 RAINFALL SAMPLING SITE= 0.00 RAINFALL SAMPLING SITE= 0.00 <p>07:55 AM 10-JUN-2009 LOGGNET</p> <p>07:55 AM 10-JUN-2009 LOGGNET</p> <p>07:45 AM 10-JUN-2009 LOGGNET</p> <p>07:45 AM 10-JUN-2009 LOGGNET</p> <p>07:45 AM 10-JUN-2009 LOGGNET</p> <p>08:15 AM 10-JUN-2009 SCADA-CALC</p> <p>07:40 AM 10-JUN-2009 SCADA-CALC</p> <p>NOTE: All stages and levels are reported in NGVD29 feet.</p> <p>Site details generated at 06/10/2009 09:20:39</p>											
	COC02 (hide)	8.42	6.45								
	COC03 (hide)	8.63	8.40								
	GOLD951 (hide)	6.03									
	GOLDW1 (hide)	3.93	-9999.00								
	GOLDW3 (hide)	-9999.00	-9999.00								

[District realtime](#)
[Radar](#) [Raindar](#)
[Rainfall Forecast](#)
[Sit Report](#)
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current flows](#)
[NWS/NOAA rainfall](#)
[NWS/NOAA QPF](#)
[WebAtlas](#)
[GVA](#)
[CPC_3month-outlook](#)


Water Conditions

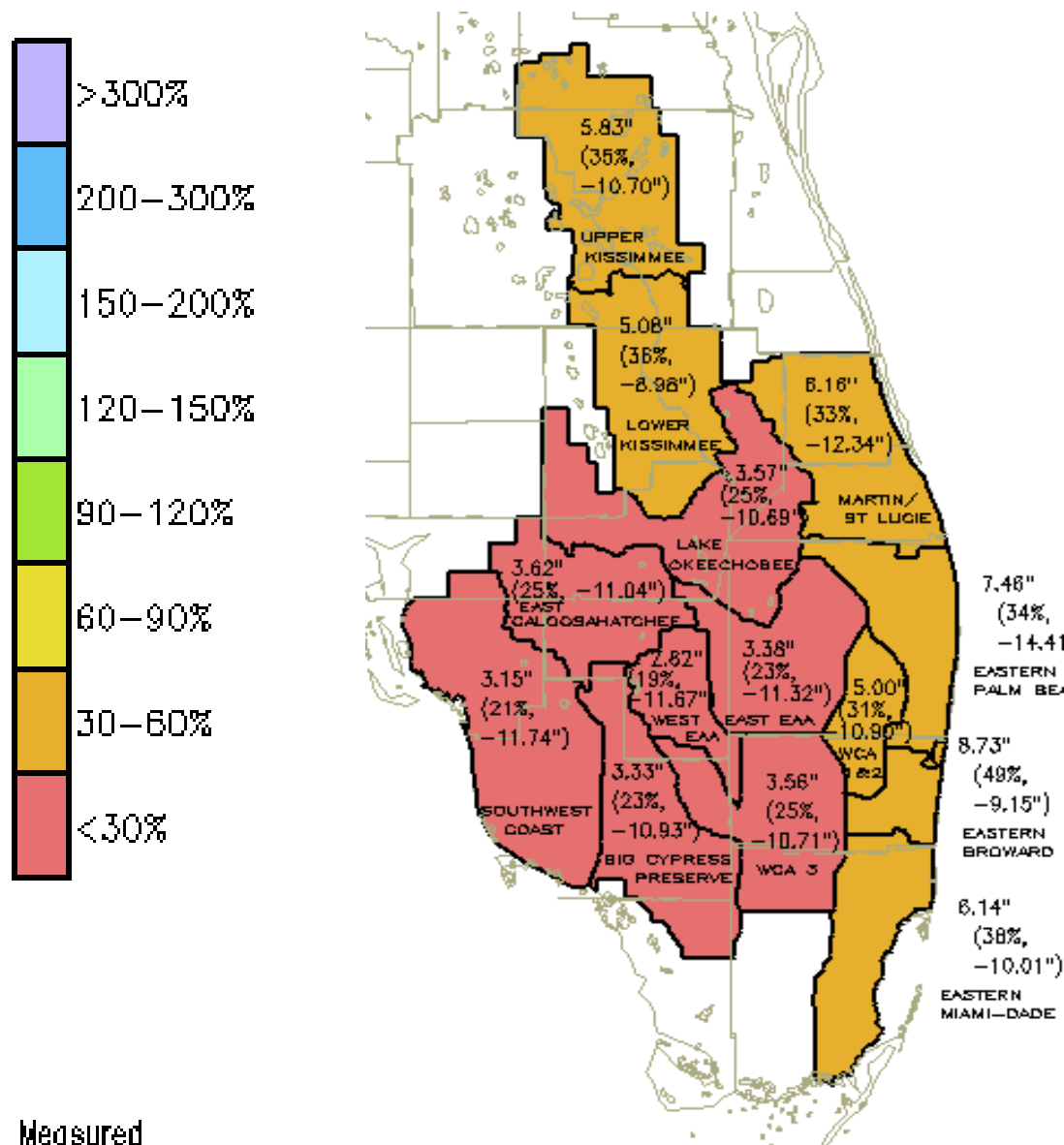
March 12, 2009

[Rainfall \(seasonal\)](#) [Link](#)
[Rainfall \(monthly\)](#) [Link](#)
[State drought monitor](#) [Link](#)
[Evapotranspiration](#)
[PA Analysis](#) [Link](#)
[3-month](#) [Link](#)
[Reg. Schedules](#) [Monthly](#)
[Rainfall Past 30 Days](#) [Link](#)
[Ripple Effect](#)
[Groundwater](#) [Groundwater 2](#)
[COE Website](#) [USGS RT Sites](#)

Note:
All values are in units of feet, NGVD

[Continue](#)





Dry Season Rainfall 02-Nov-08 to 08-May-09

DISTRICT-WIDE:
4.54" (29%, -11.01")

Average (Nov-April)
Dry Season
= 13.6"

- WCAs 1 & 2, East Coast and Upper and lower Kissimmee basins received between 30 and 40% of their dry season average
- The rest of the District received less than 25% of its dry season average

Rain Grid

0-.001

.001-.1

.1-.25

.25-.5

.5-.75

.75-1

1-1.5

1.5-2

2-3

3-4

4-5

5-6

6-8

8-10

10-12

12-15

AHED Watershe

County

Estimates typically
are within 20%
of actual rainfall.

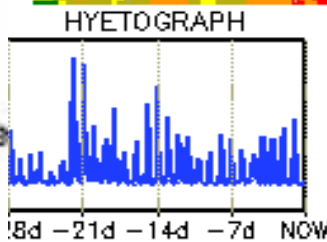
May Rainfall

2 May – 1 June 2009

DISTRICT-WIDE:
9.04" (216%, +4.85")

Average (May)
= 4.19"

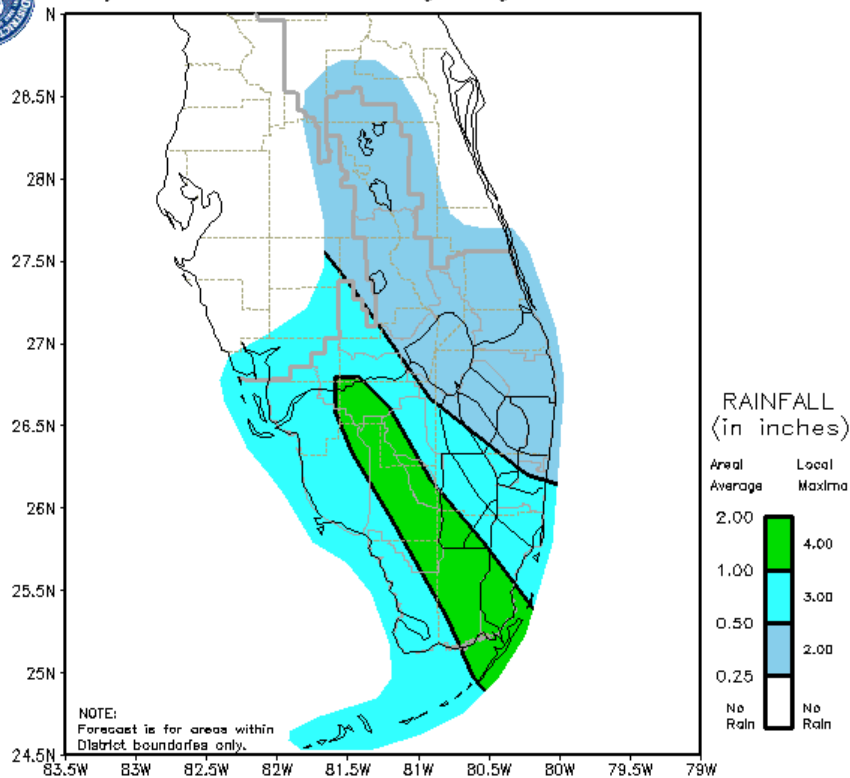
The May rainfall brought the November 2008 to May 2009 District-wide rainfall up to 13.51", or 72% of the historical average for the 7 month period. The Upper Kissimmee Valley 7-month rainfall was 20.08" or 104% of the historical average.



Weather Forecast – Short Term



SFWMD QUANTITATIVE PRECIPITATION FORECAST
Day 5 24-Hour Period Beginning 7am EST SUN



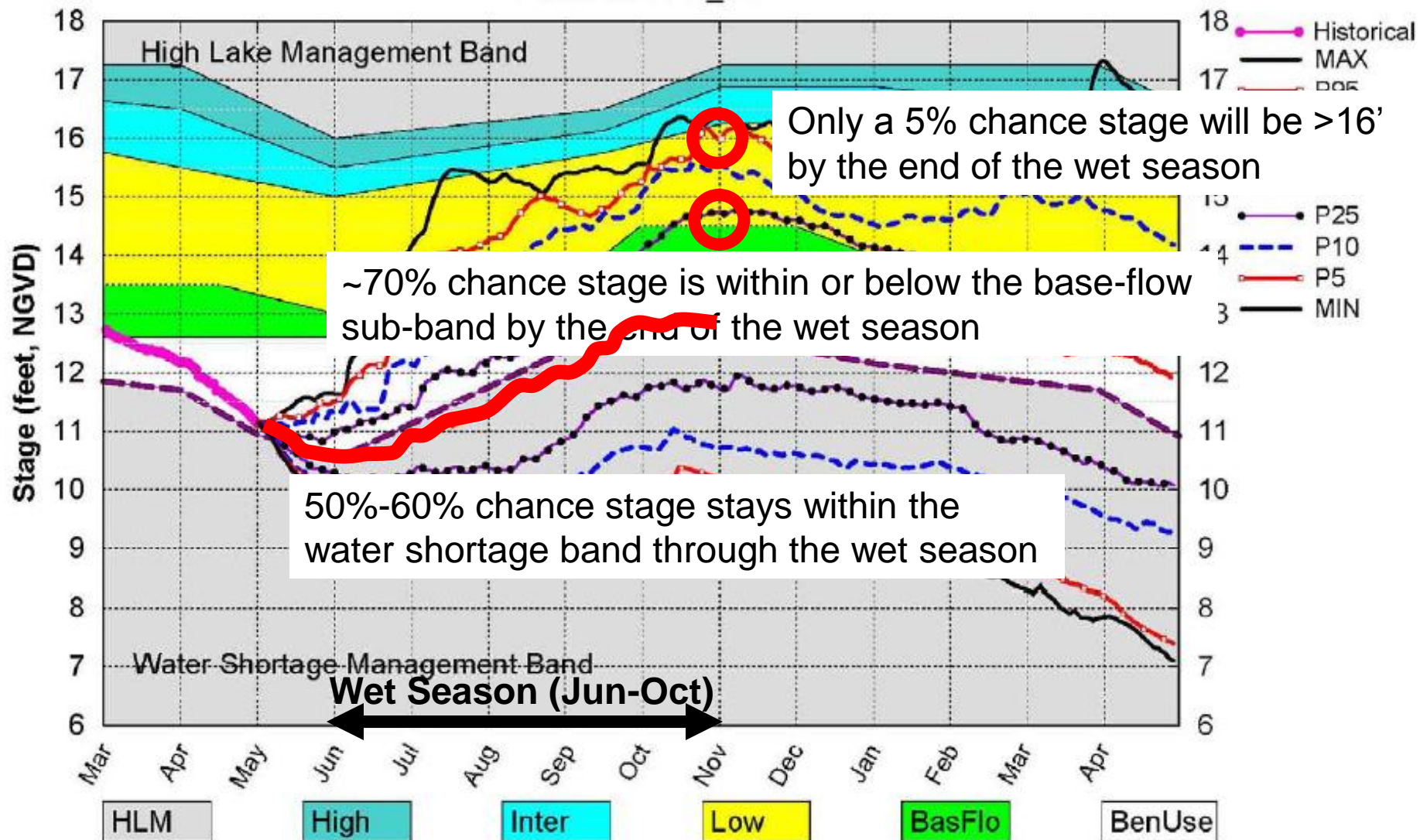
ISSUED: Wed 13-May-2009 08:48 EDT

- Synopsis: The wet season appears to have begun.
- The daily afternoon shower cycle which stepped up to respectable levels Monday is forecast to persist. Light steering winds will focus slow-moving thunderstorms (meaning locally heavy rainfall) over the interior today. East and southeast steering winds should bring some morning shower activity to the east coast but keep most afternoon thunderstorm activity focused over western areas Thursday through Saturday.
- By Sunday and then into next week, steering winds should shift to the south and then southwest bringing a further increase in moisture and rains which should include the eastern portions of the District.



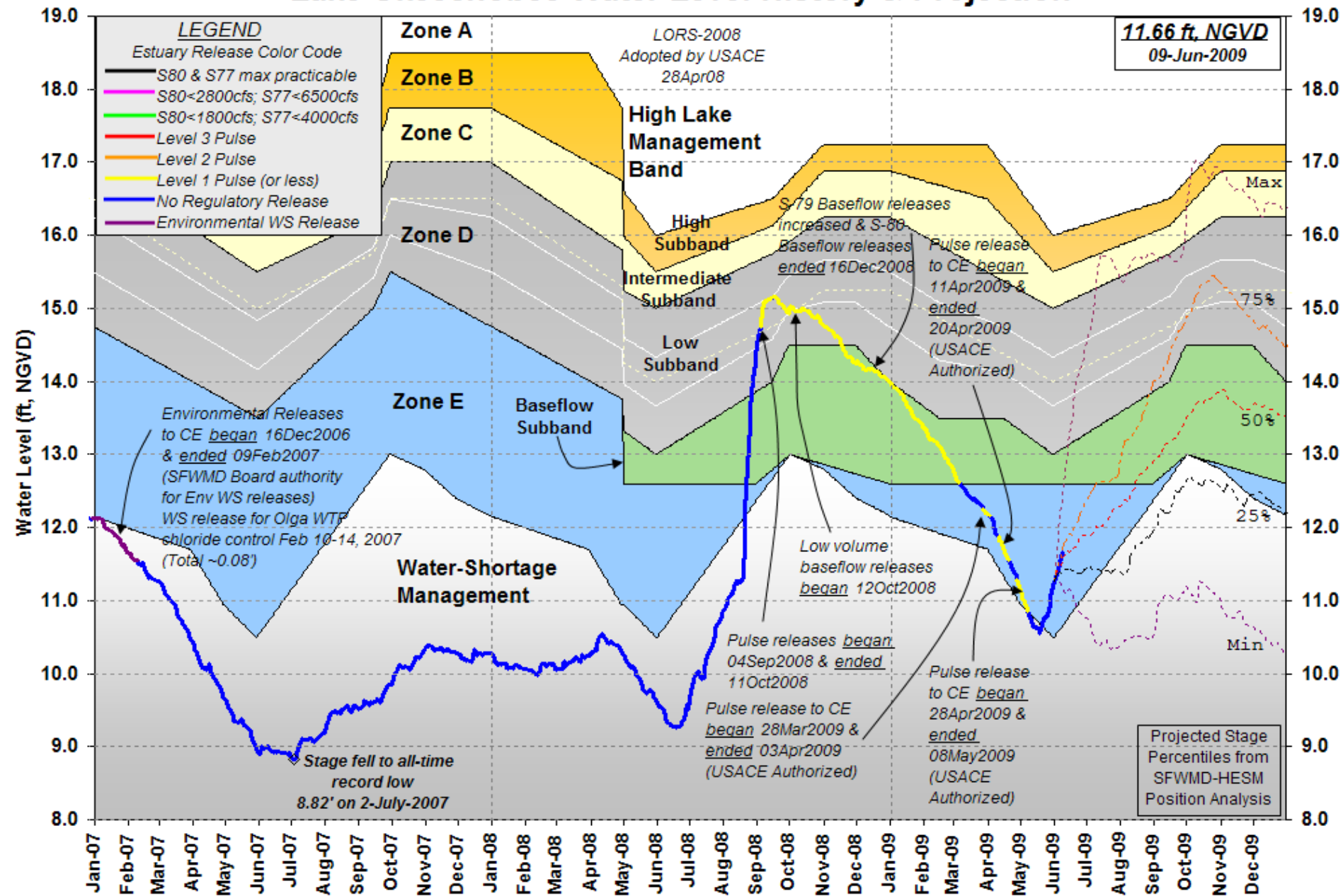
Lake Okeechobee SFWMM May 2009 Position Analysis

Percentiles PA_V2



(See assumptions on the Position Analysis Results website)

Lake Okeechobee Water Level History & Projection



Lake Hart - looking east - Lake Mary Jane in background



Ecological Update

Governing Board Workshop
June 10, 2009
Dean Powell
Director, Watershed Management Department

Kissimmee River floodplain Was Dry

- Restored floodplain was mostly dry by mid-May (photo)
- High rainfall events significantly increased discharge to restored area
- Lake Kissimmee discharge increased to 4700 cfs in late May
- Will be reduced this week to allow Lake Kissimmee to rise per regulation schedule

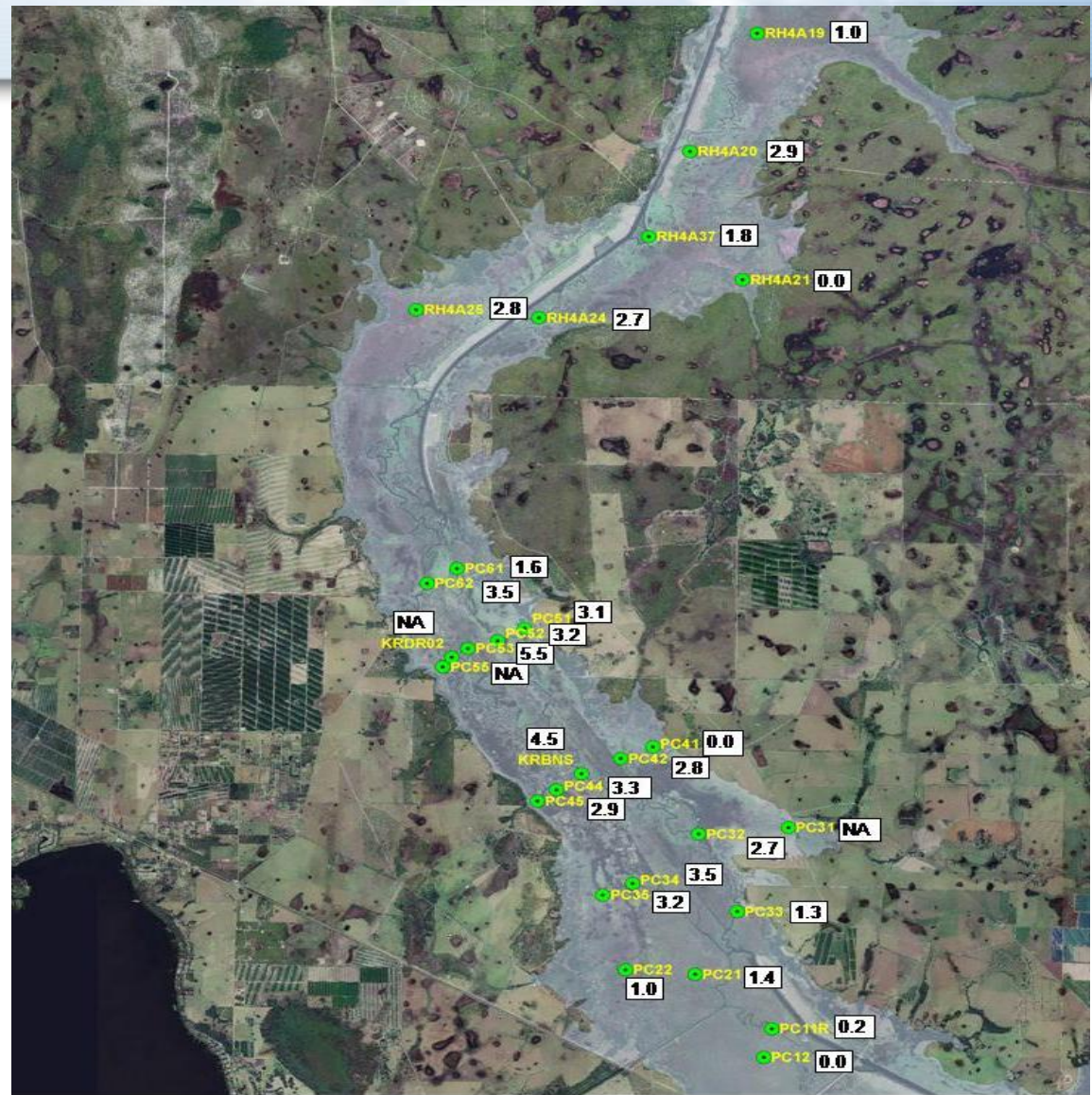


May 12, 2009



Kissimmee River Floodplain Now Wet

- Most of floodplain inundated
- Following the heavy rains dissolved oxygen dropped
- Have dipped below 2 mg/L (level of concern)



Legend Kissimmee River Pool B/C Floodplain Water Depths (ft)

Station
Floodplain Area

6/2/2009

0 0.4 0.8 1.6 Miles

Kissimmee River Fish Kill June 2009

- 600-1,000 threadfin shad
- Decreased levels of dissolved oxygen (0.5 mg/L) the cause
- Shad highly intolerant of low dissolved oxygen concentrations.

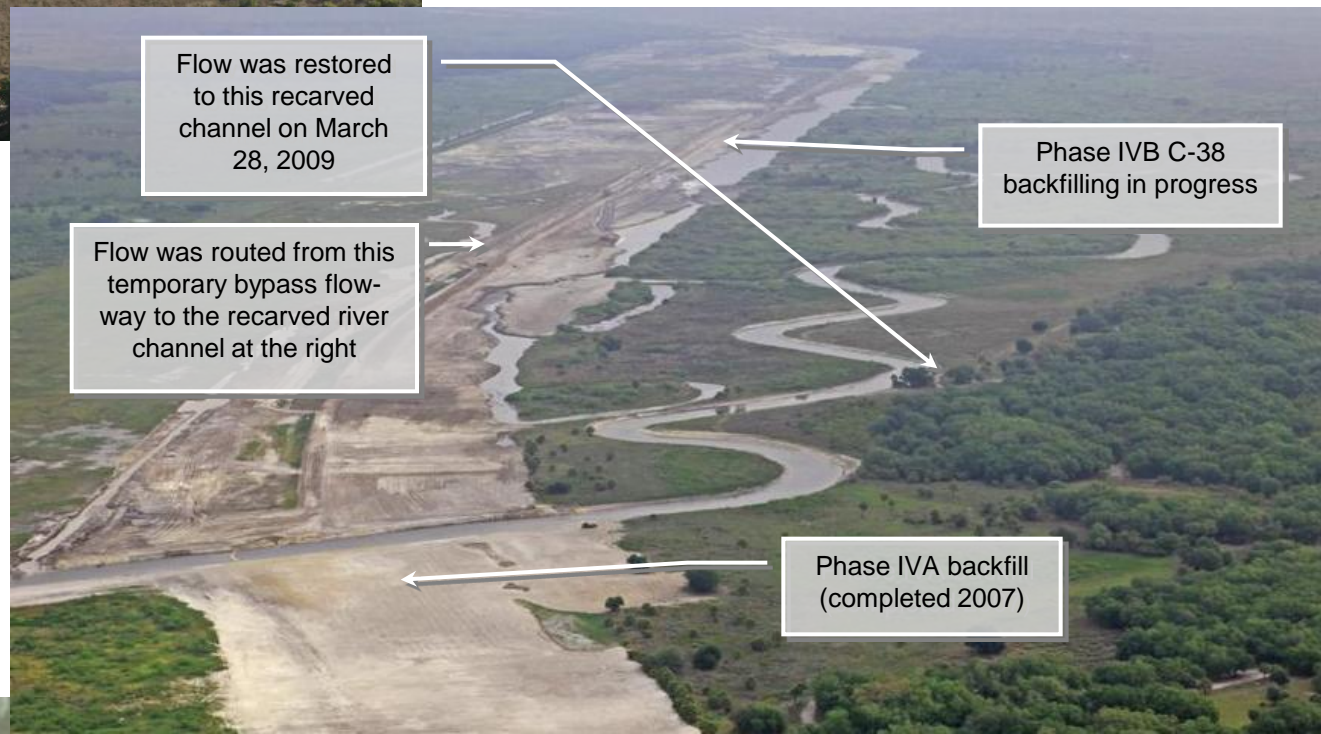


Kissimmee River Restoration - Construction



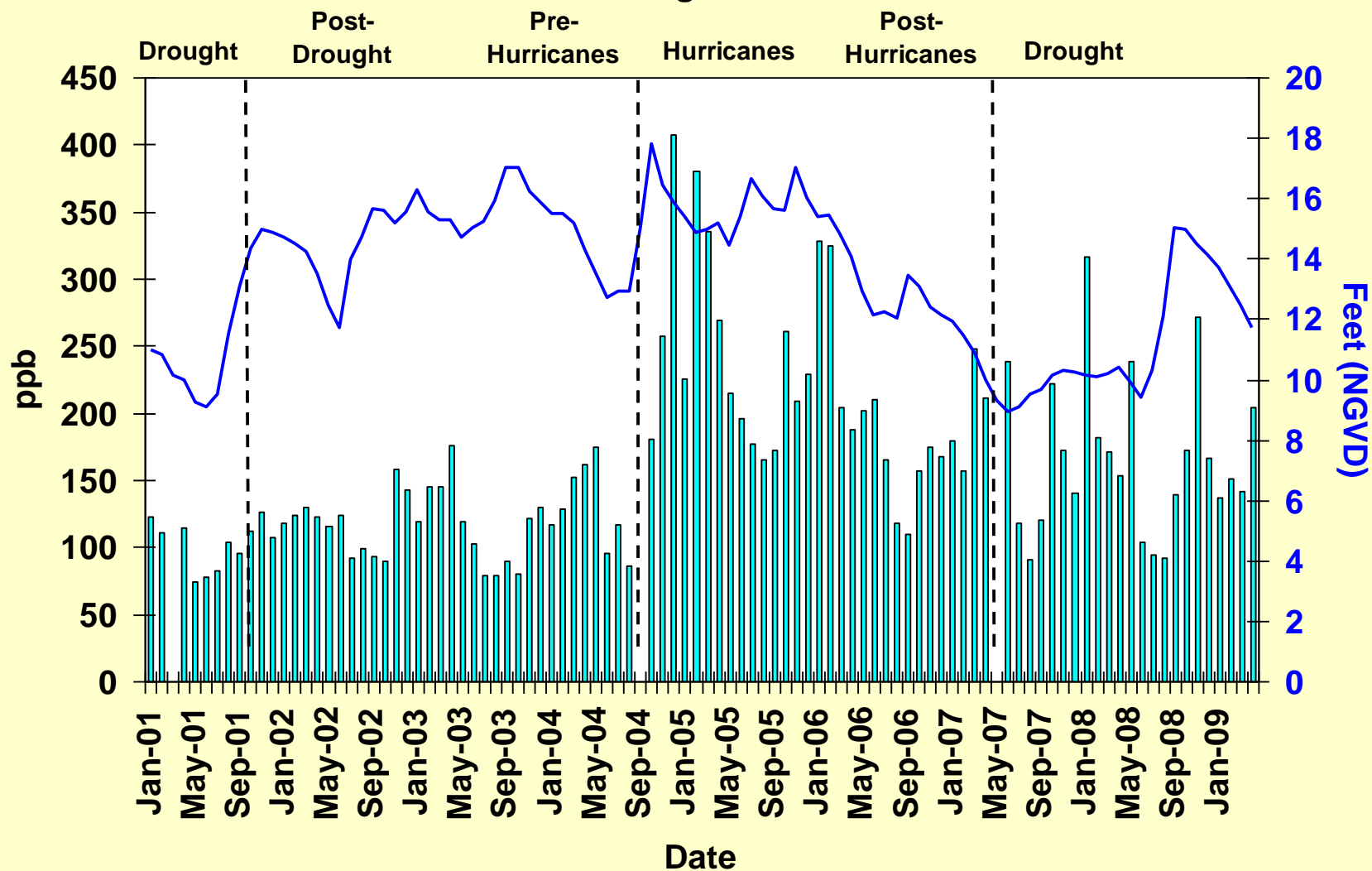
- **Construction temporarily slowed in mid-May due to flooding**

- **Kissimmee River Restoration construction (all phases): ~50% complete**



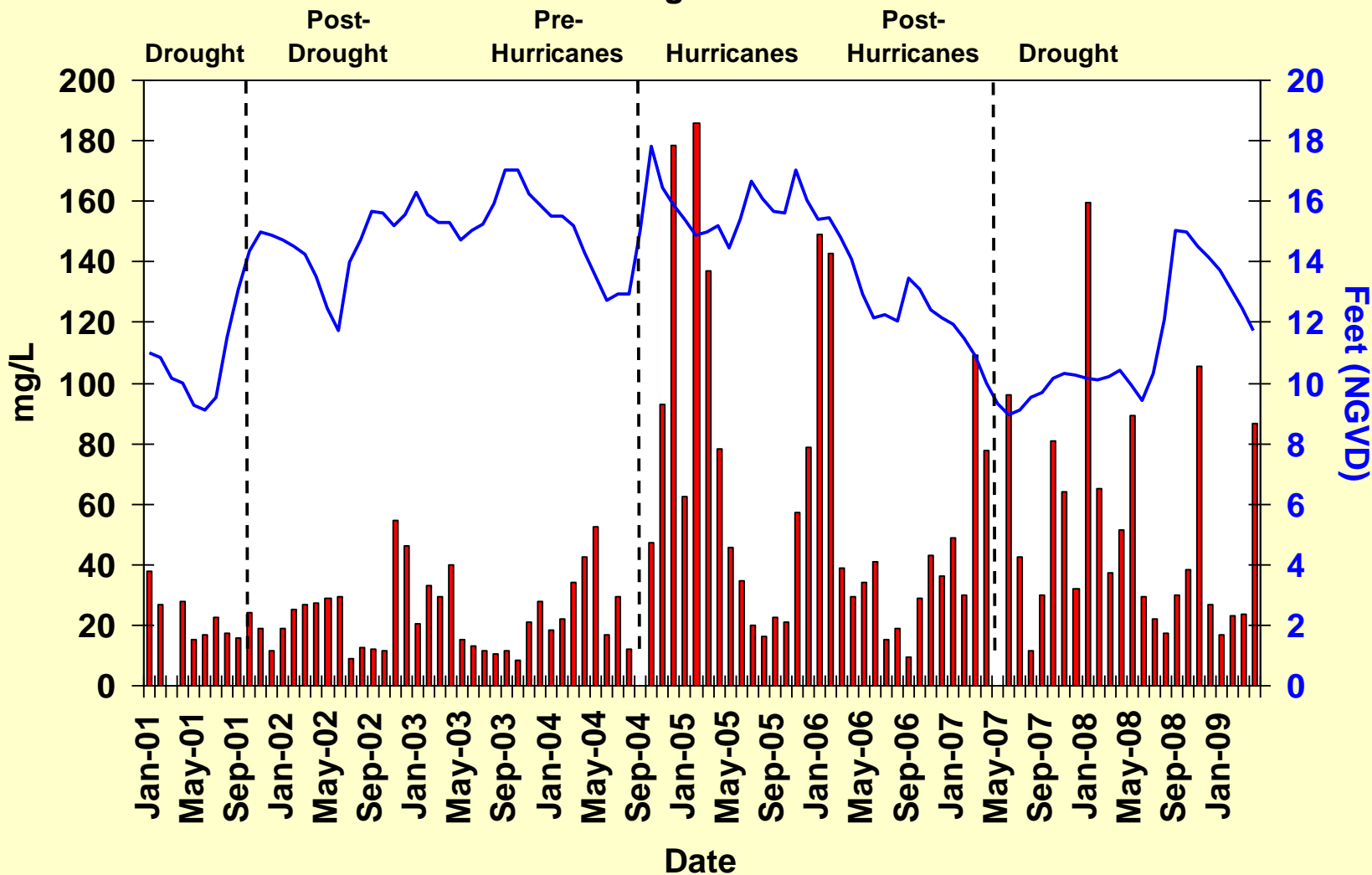
Lake Okeechobee Water Quality

Pelagic TP



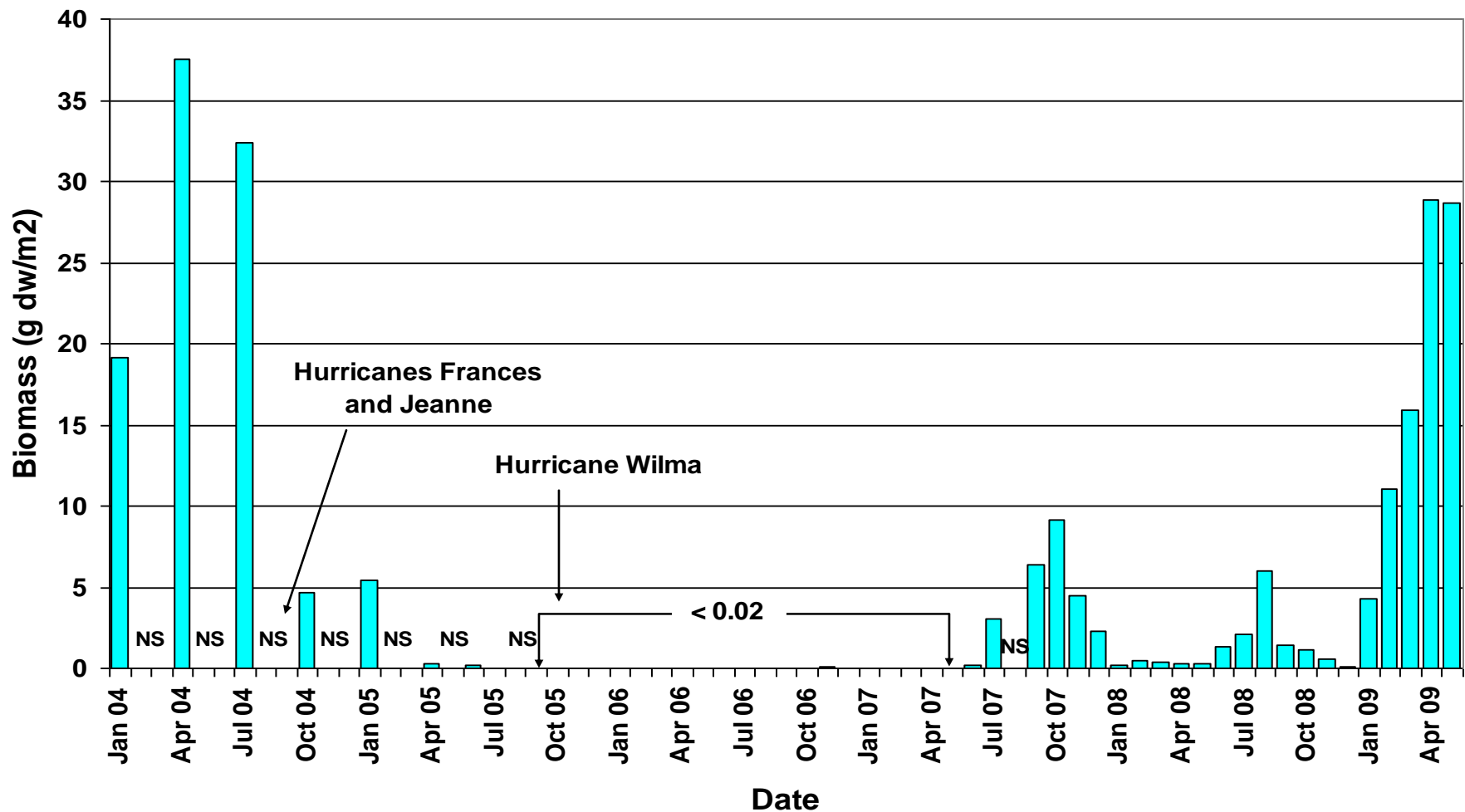
Lake Okeechobee Water Quality

Pelagic TSS

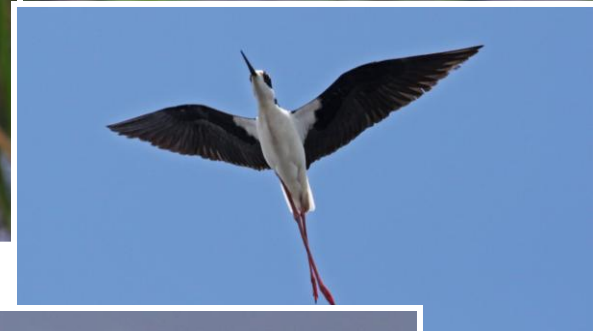


Lake Okeechobee Submerged Aquatic Vegetation

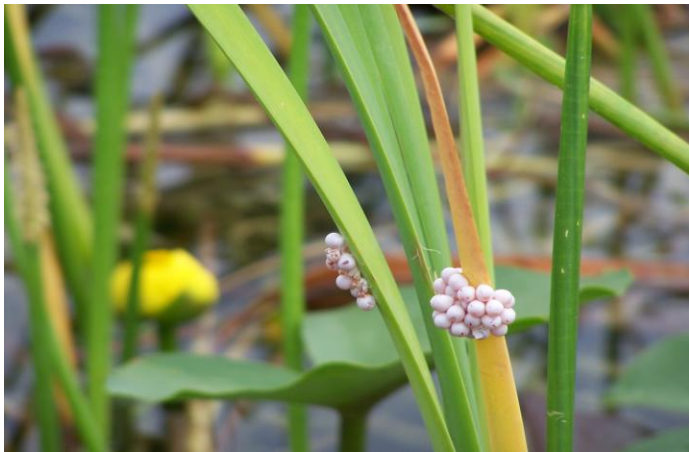
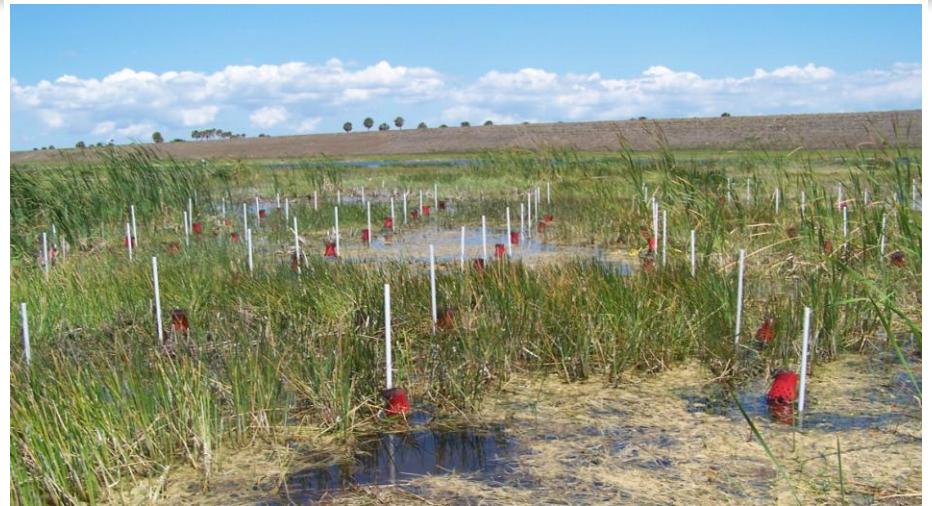
Average SAV Biomass



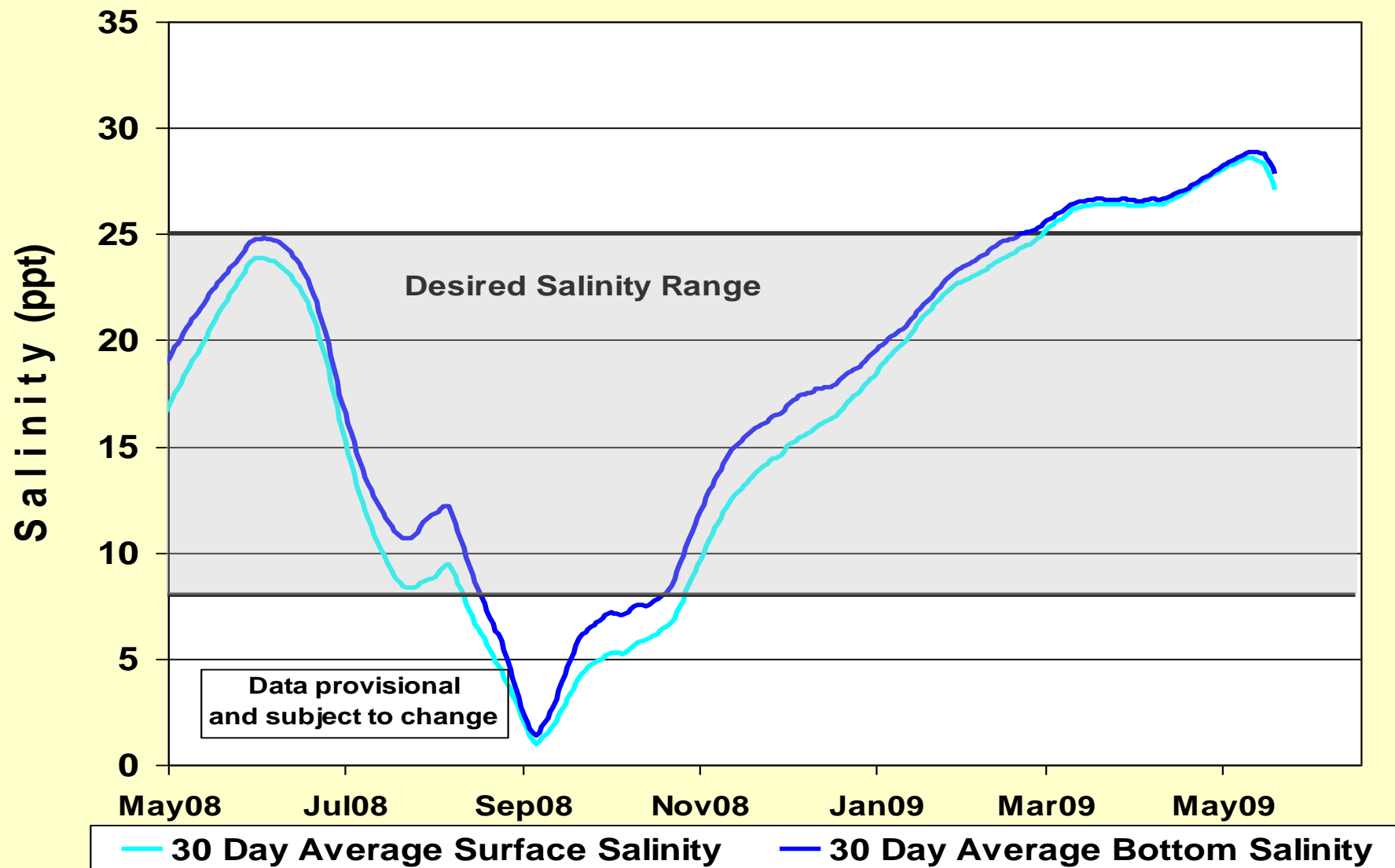
Lake Okeechobee Wildlife Flourishing



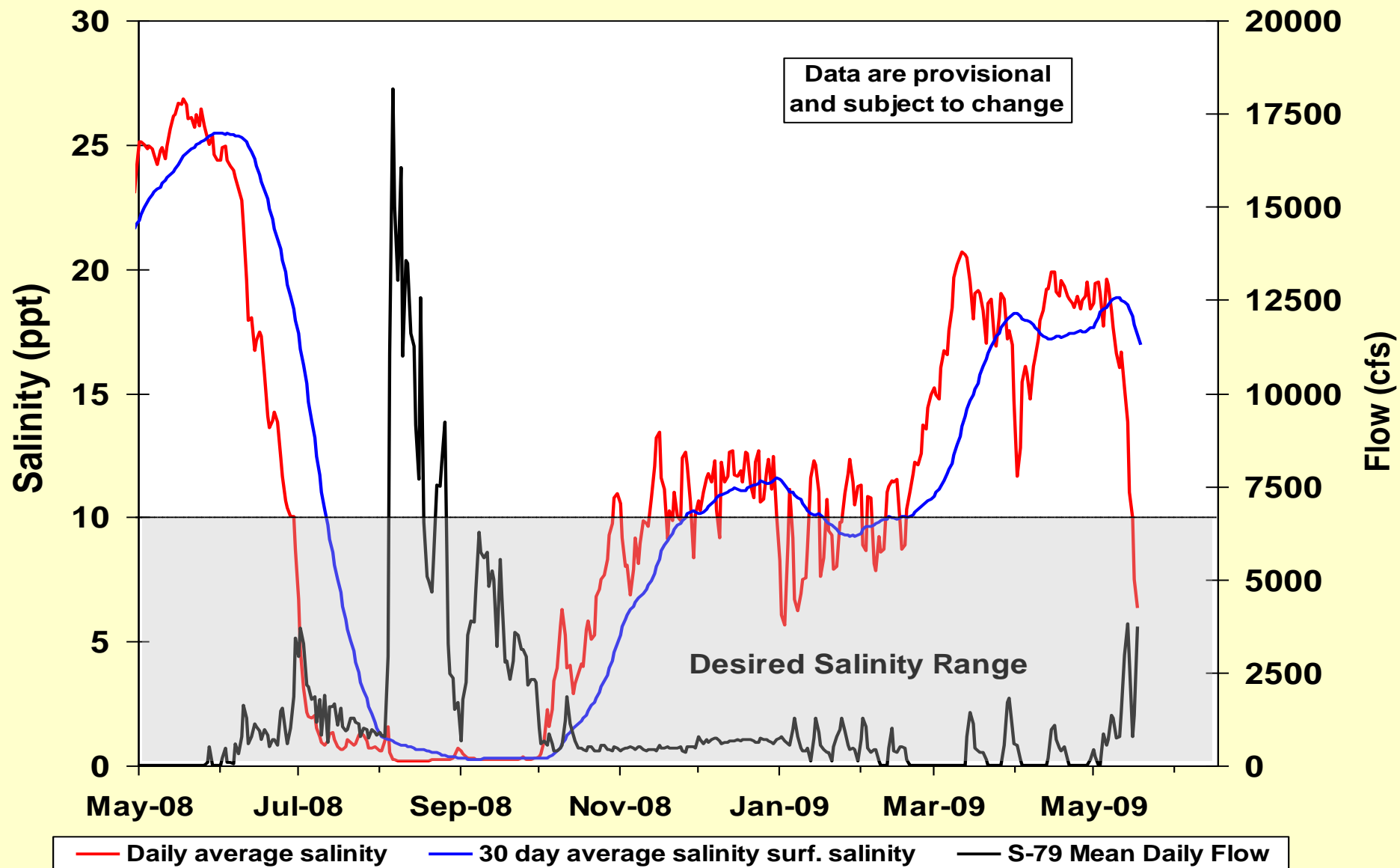
Lake Okeechobee Apple Snail Mark and Recapture



St. Lucie Estuary Salinity Envelope US 1 Bridge



Caloosahatchee Salinity: Ft. Myers

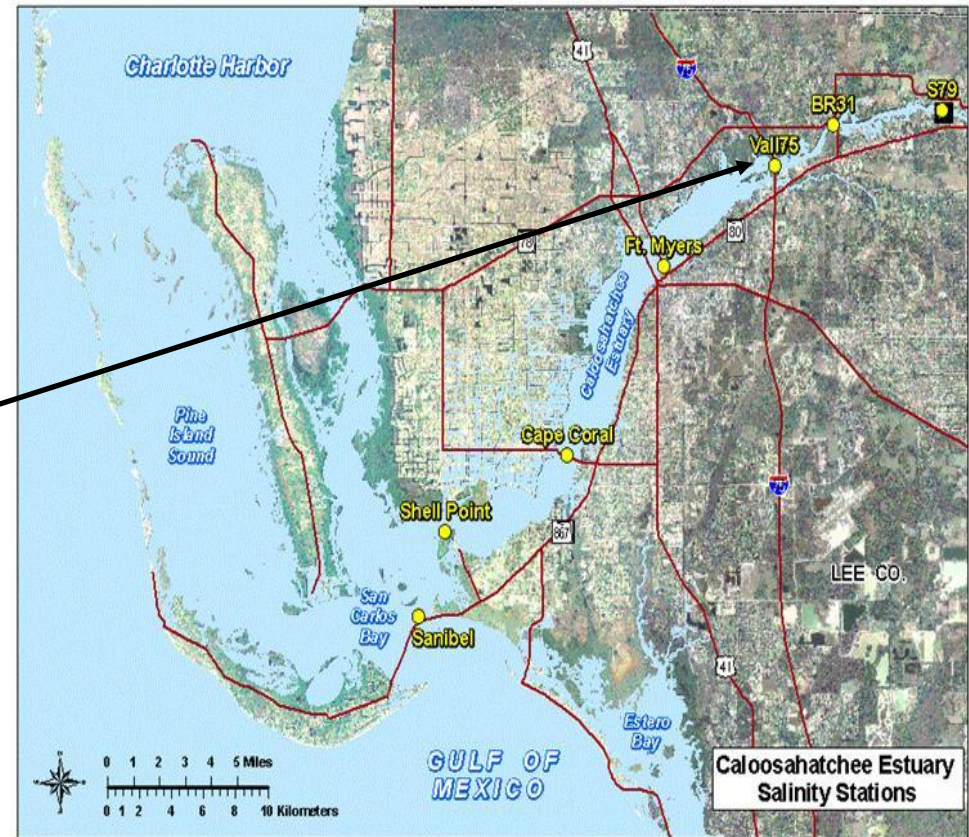
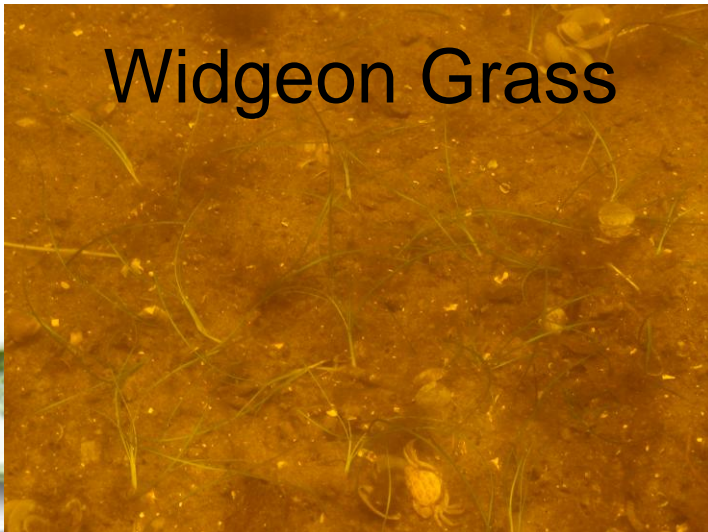


Submerged Aquatic Vegetation in the Caloosahatchee

Tape Grass

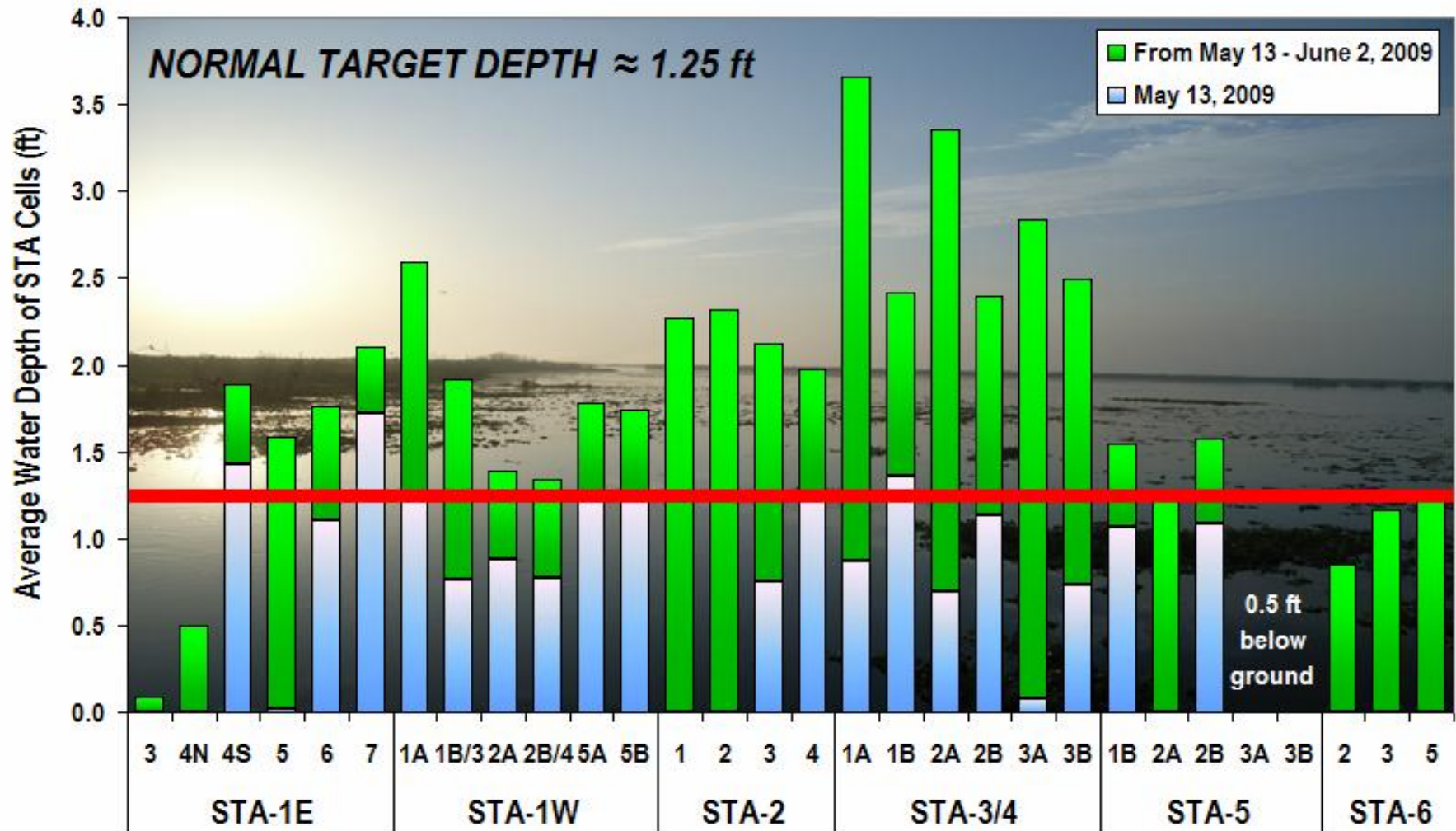


Widgeon Grass



Stormwater Treatment Areas: Transition from Dry to Wet Conditions

Average Water Depth of select STA cells

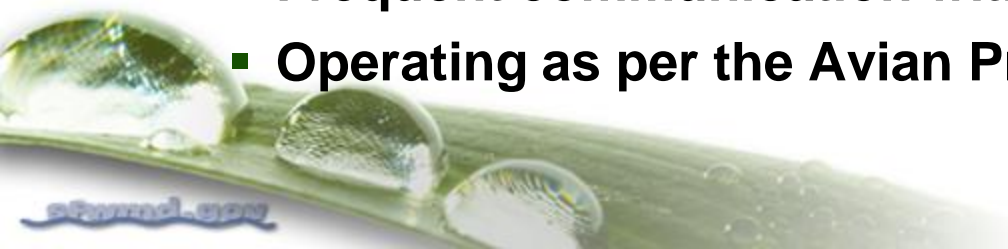


Black-Necked Stilts Nesting in Stormwater Treatment Areas



Location	Initial Survey (April 2009) # of nests	May 2009 Survey # of nests
STA-1E	29	102
STA-1W	5	360
STA-2	0	237
STA-3/4	4	23
STA-3/4 PSTA	0	46
STA-5	0	105
STA-6	0	0

- Some nests were impacted as a result of heavy rains
- Able to protect flow-ways with highest number of nests
- Frequent communication with USFWS throughout heavy rains
- Operating as per the Avian Protection Plan



STA-5 Cell 1A Rehabilitation

- Joint effort between Water Resources and O&M
- Original goal to fill slough with 150,000 cubic yards of material
- 407,240 cubic yards actually achieved
- Total cost approximately \$2 million
- Same work completed by contractor estimated at \$4 million

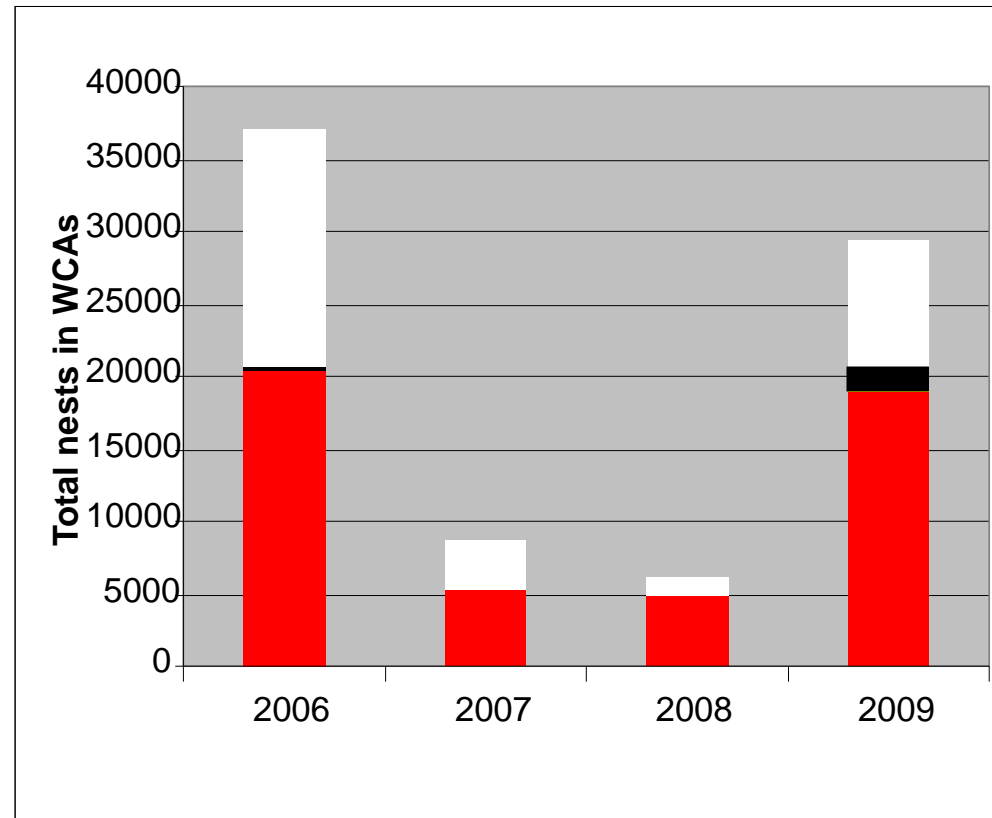


Wading Bird Nesting in the Everglades in 2009

1. Total number of wading bird nests in the WCAs was relatively high (see graph).
2. Tens of thousands of White Ibis and heron chicks are currently fledging in the WCAs and ENP.

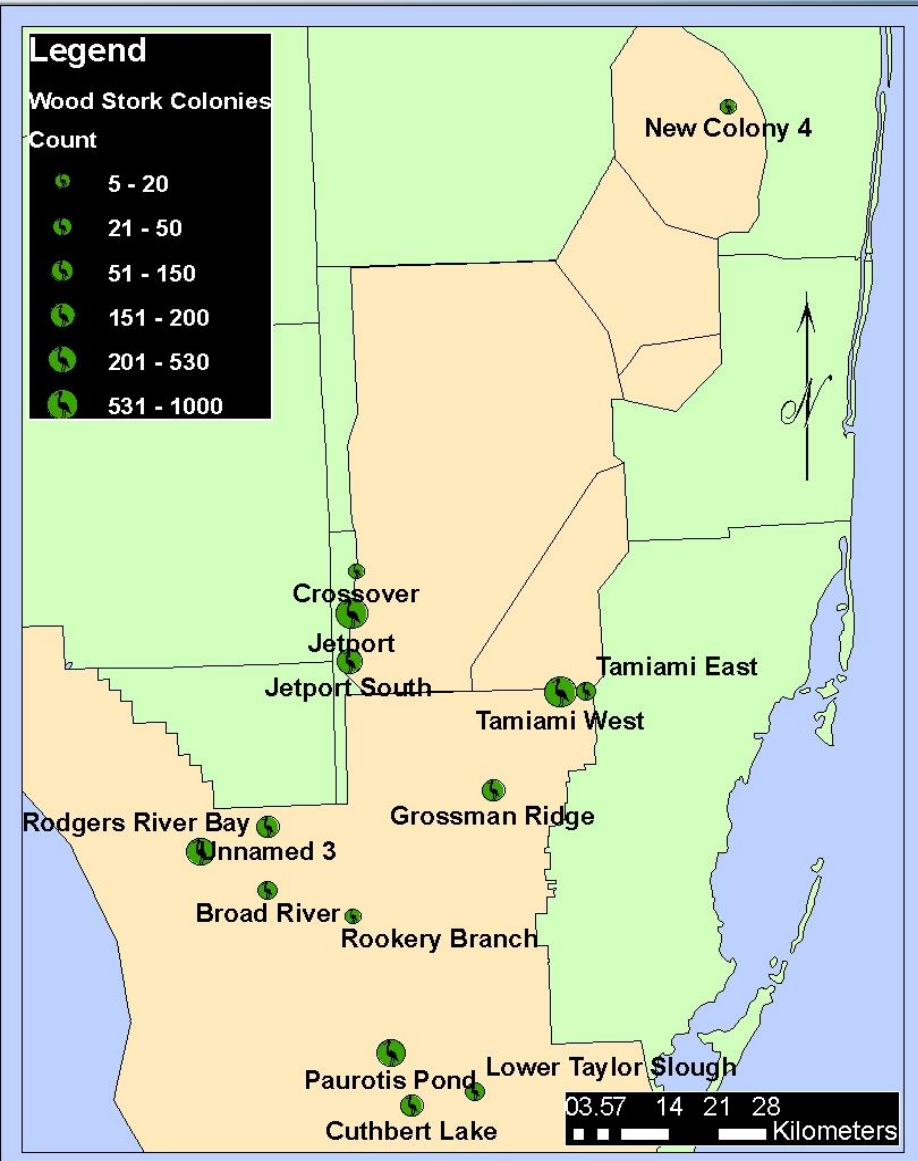


Total Number of White Ibis (red), Wood Stork (black) & Great Egret (white) Nests in the WCAs & Northern ENP



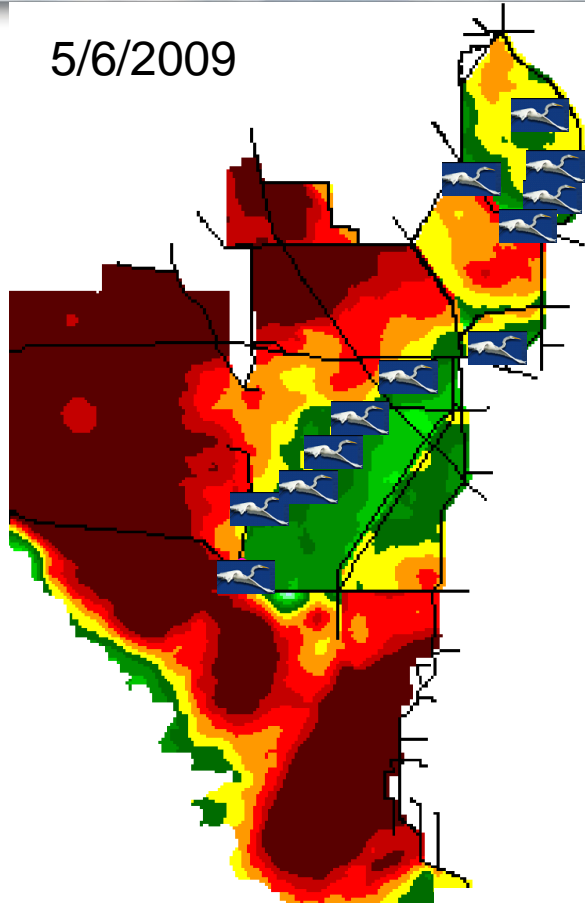
Wood Stork Nesting Effort

- Largest number of nests (~3,600) since the 1930s.
(CERP Target: 1500 nests)
- 45% occurred in the historic estuarine colonies of ENP.
(CERP Target: 50%)
- Nesting initiated early February.
(CERP Target: Dec/Jan)
- Production very high (currently ~ 2 chicks per nest).

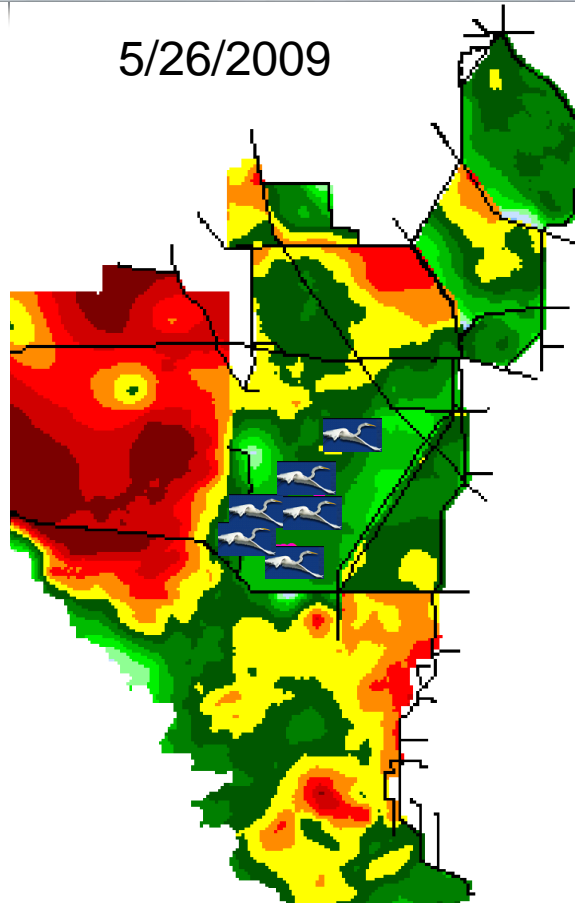


Wading Bird Foraging in the Everglades

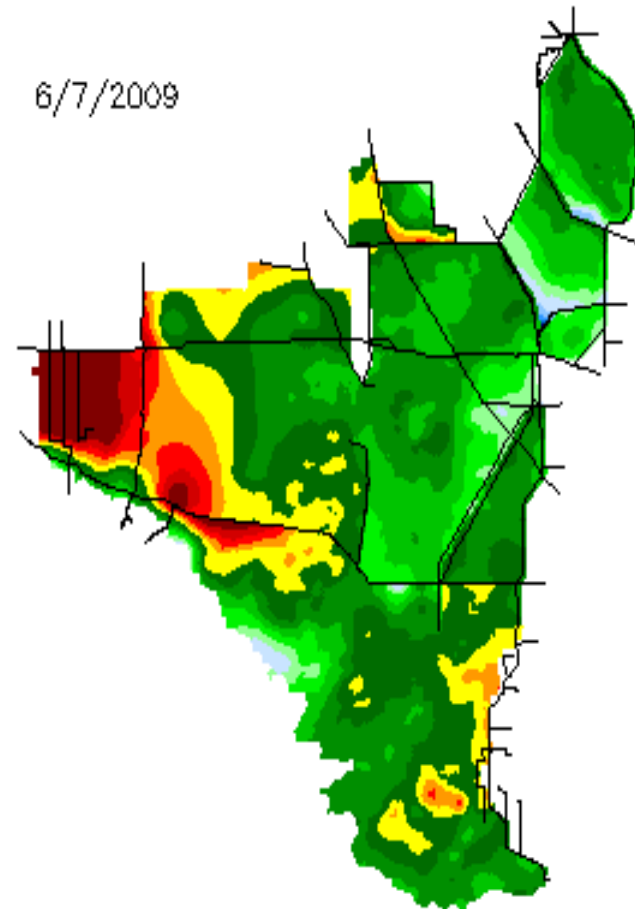
5/6/2009



5/26/2009



6/7/2009



Water Depth (feet)

-2.50

0.00

2.50

5.00



**Mixed Flocks >
100 Birds**



Water Shortage Activities

Governing Board Workshop

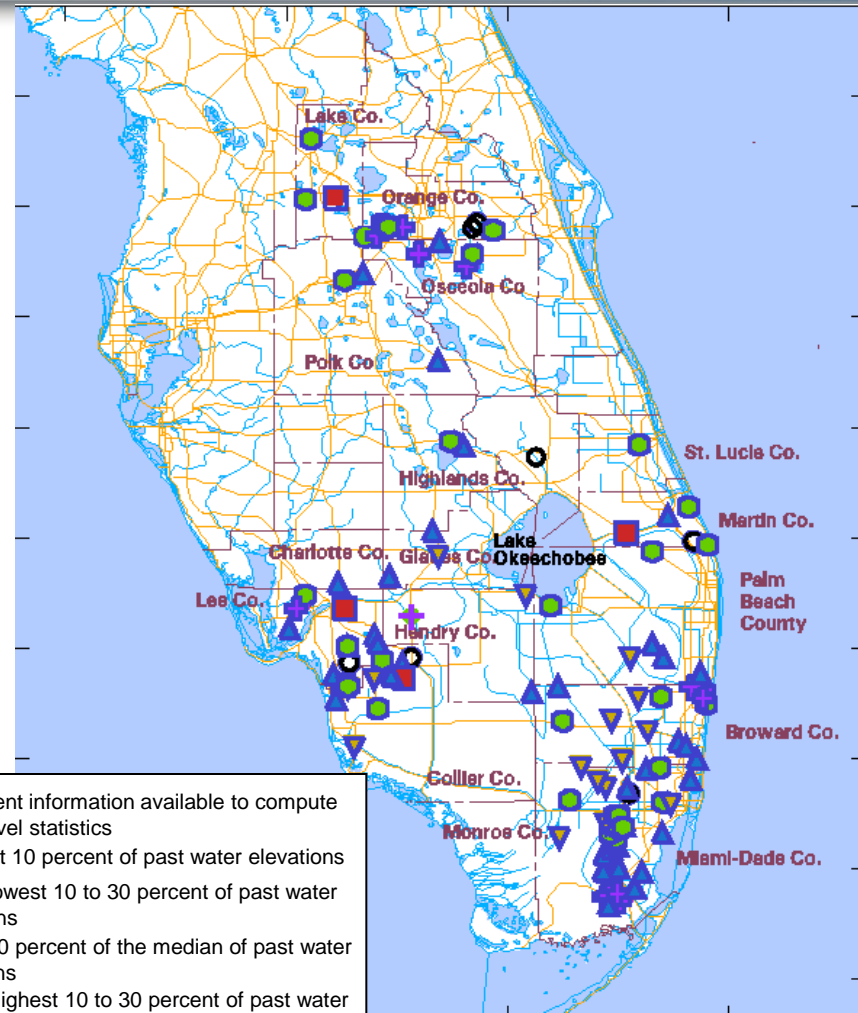
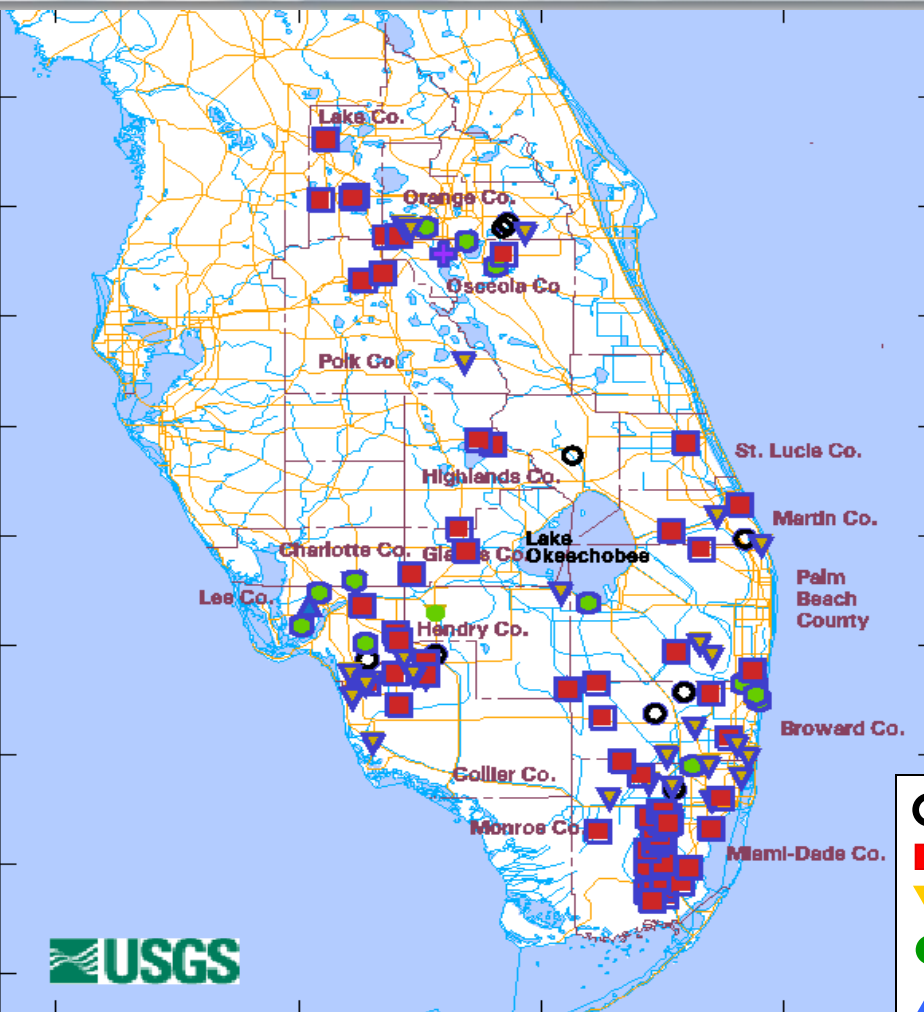
June 10, 2009

Peter J. Kwiatkowski, P.G.

Director, Resource Evaluation Division

Groundwater Levels May 11, 2009

Groundwater Levels June 1, 2009

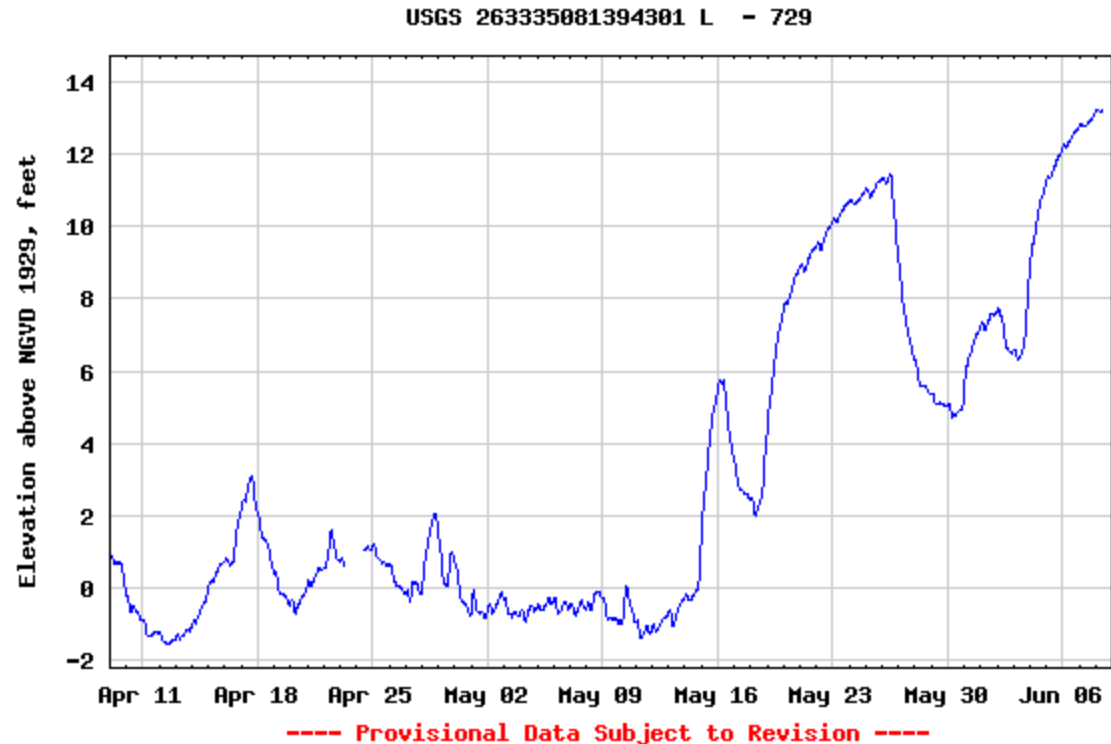


- Insufficient information available to compute water-level statistics
- In lowest 10 percent of past water elevations
- ▼ Within lowest 10 to 30 percent of past water elevations
- Within 20 percent of the median of past water elevations
- ▲ Within highest 10 to 30 percent of past water elevations
- ✚ In highest 10 percent of past water elevations

USGS

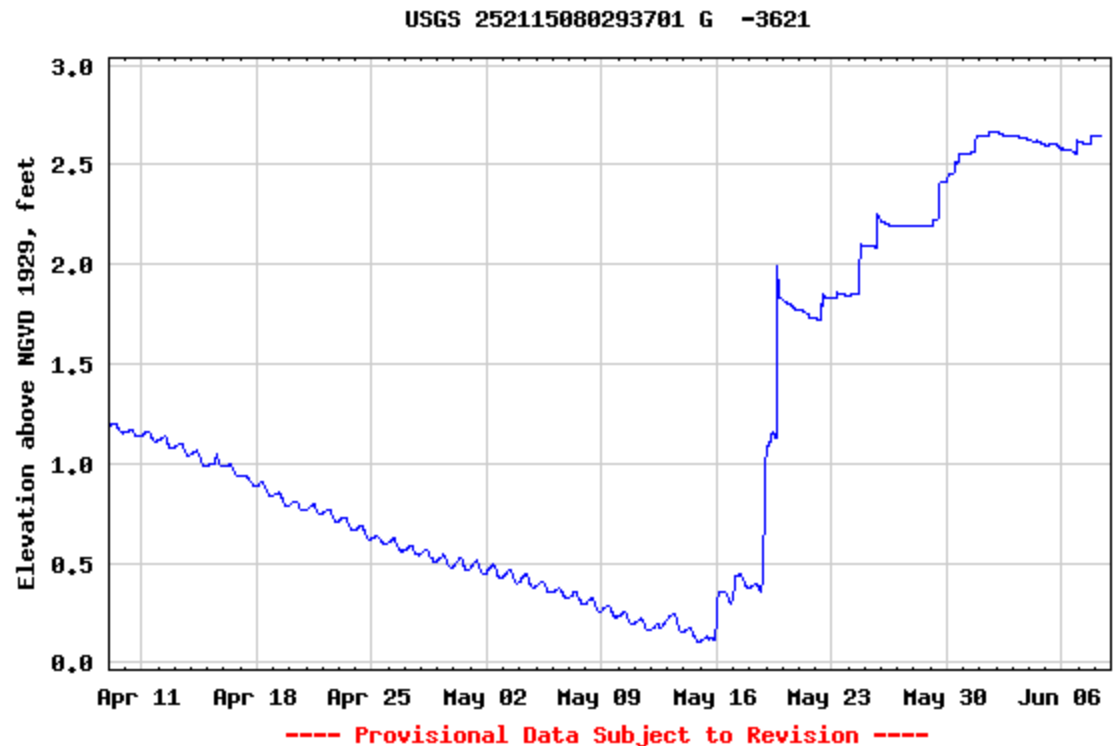
Water Levels, Sandstone Aquifer Near Lehigh Acres

- USGS Well L-729
- Water levels near all-time lows
- Water Levels now above average due to record May rainfall
- Staff Recommendation:
Rescind Modified Phase II Order (agriculture, nurseries, golf courses, landscape irrigation)



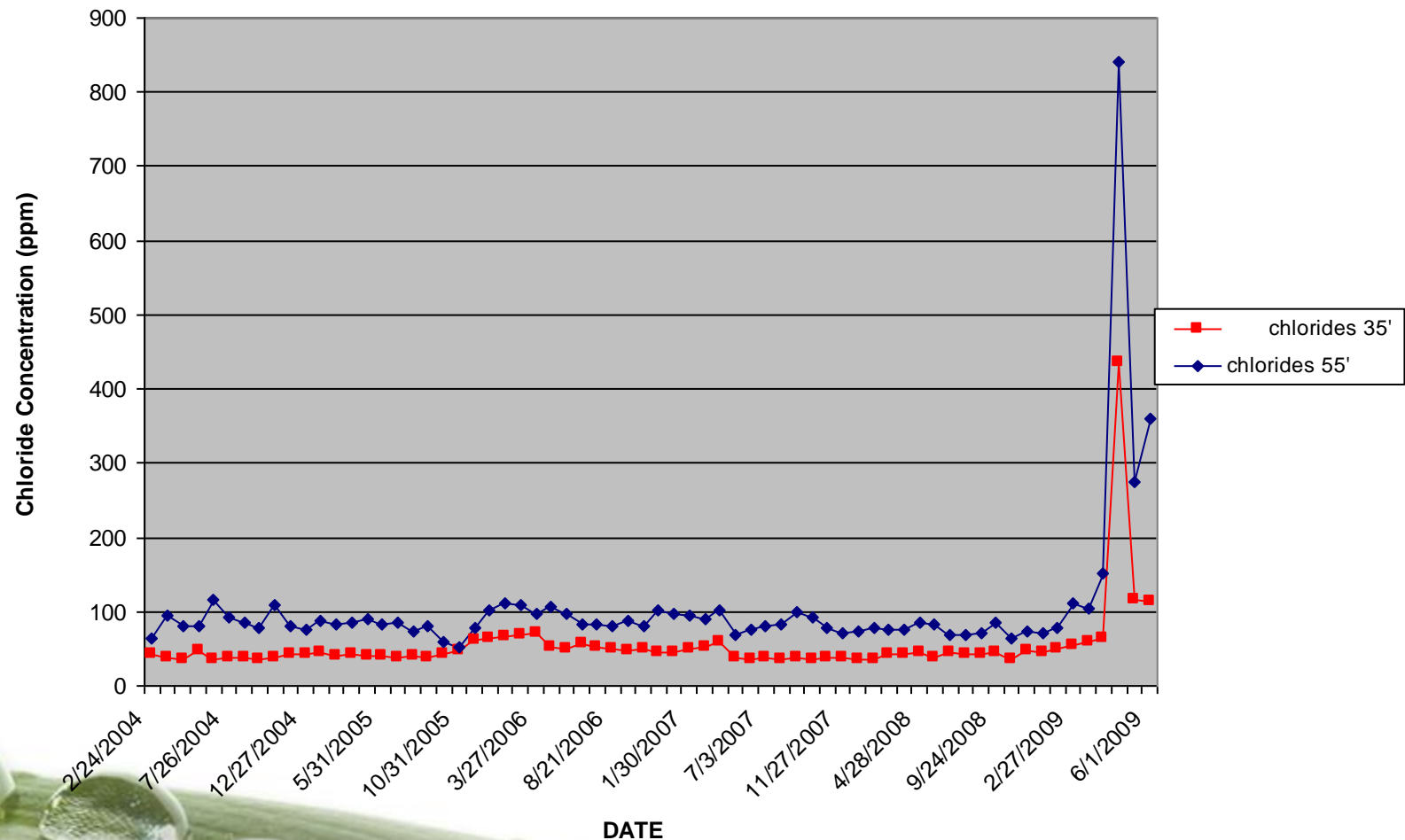
Water Levels, South Miami-Dade and Monroe Counties

- Water levels at all-time lows (USGS Well G-3621 at 0.26 feet)
- Record May rainfall
- Water levels significantly above average
- Staff Recommendation:
Rescind Modified Phase I (agriculture, nurseries, golf courses) and Modified Phase III (landscape irrigation – 1 day per week) Orders



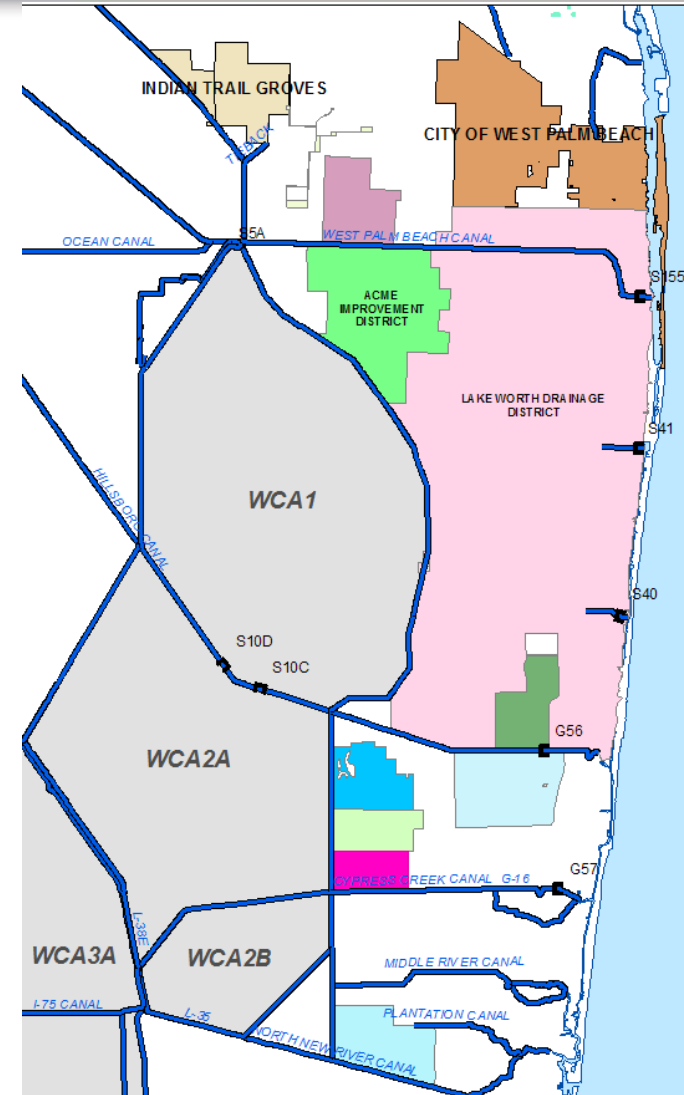
Chloride Concentrations, South Miami-Dade County, Monitor Well FKS-8

FKS-8 Chlorides 35' & 55'



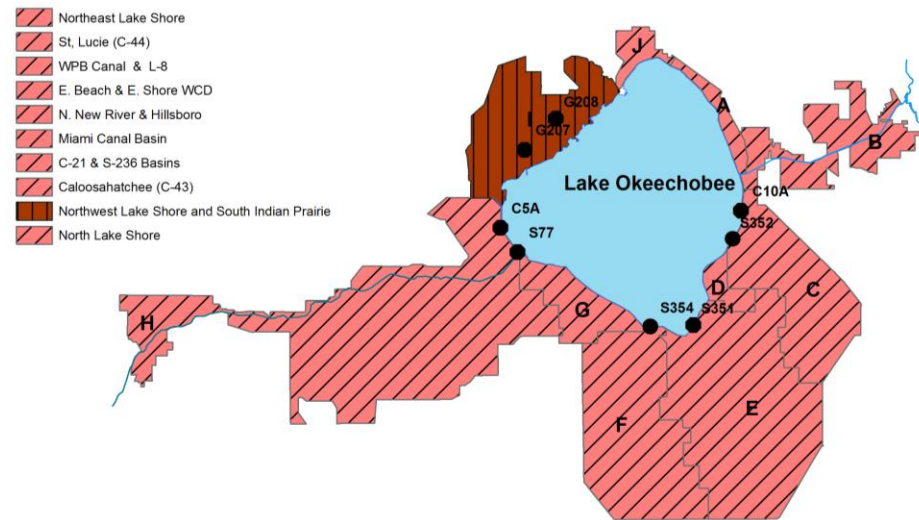
Diversion & Impoundments and Users of the Regional System

- Previously below floor elevation of WCA-1 (14 ft NGVD)
- Currently above floor elevation (16.06 ft NGVD)
- Bigger concern today is flood control



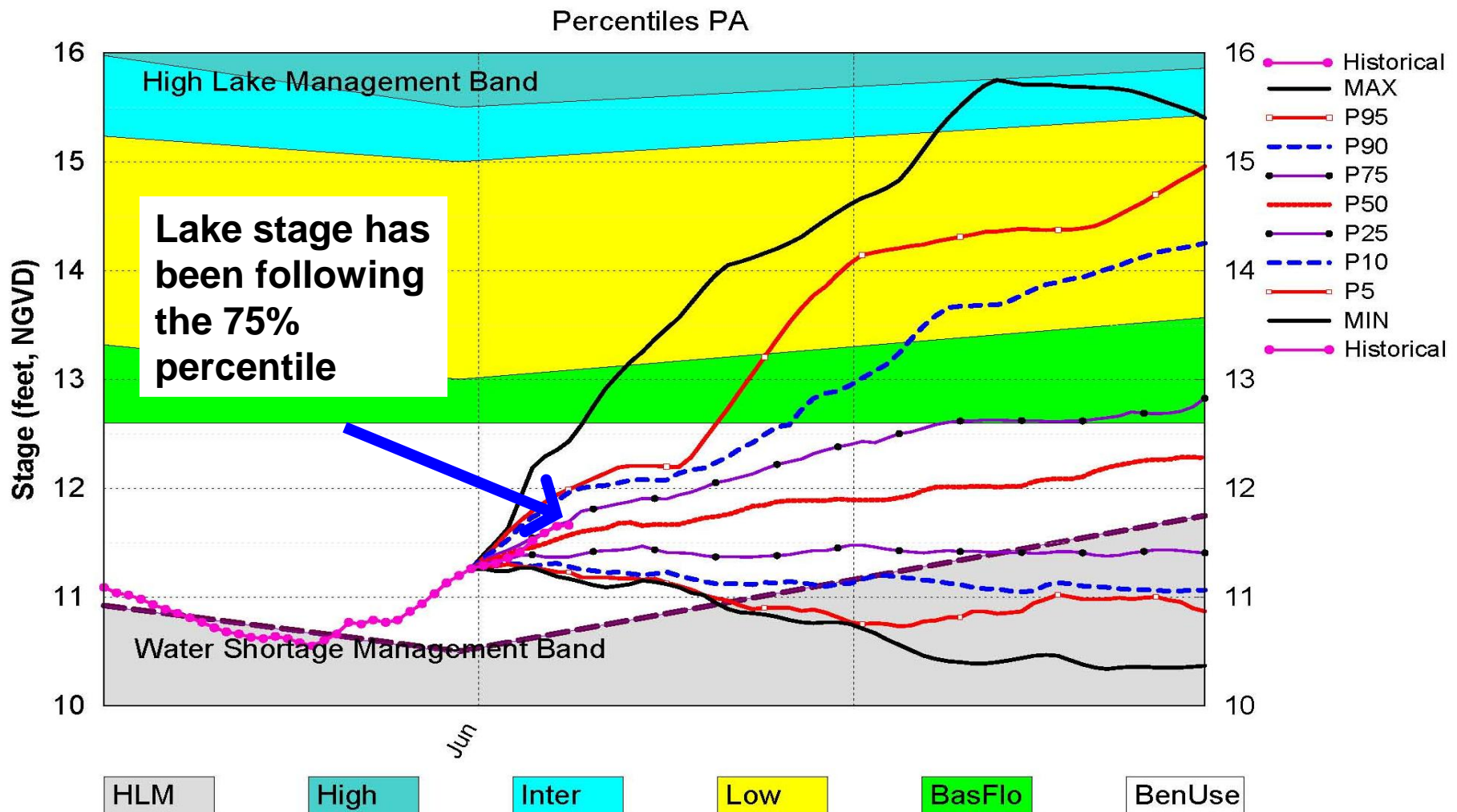
Lake Okeechobee Service Area Update

- Low level this year on May 18, 2009 (10.55 ft NGVD)
- Direct rainfall (11 inches; 30 days) supplemented by inflows results in current level of 11.65 ft NGVD
- Lake is now more than 1 foot above Water Shortage Management Zone



Lake Okeechobee Position Analysis

Lake Okeechobee SFWMM June 2009 Position Analysis



Factors to Consider, LOSA Order

- Kissimmee River Floodplain is full
- WCAs above schedule
- Early in wet season
- USACE “Beneficial Use” Zone: 12.5 ft NGVD
- Proposed Trigger to Rescind LOSA Orders:
12 ft NGVD (includes order to assume control
of some LOSA structures)



Summary of Staff Recommendations

- Rescind Lehigh Acres Area Order & Impose Modified Phase II (landscape irrigation)
- Rescind both Miami-Dade/Monroe Orders & Impose Modified Phase II (landscape irrigation)
- Concur with rescission of Diversion & Impoundment Order
- Proposed Trigger to Rescind LOSA Orders: Lake Okeechobee level of 12 ft NGVD
- If Lake O level tapers off before reaching 12 ft NGVD, Executive Director may modify restrictions to Phase I
- Continue monitoring conditions

